DOCUMENT RESUME

ED 439 912 SE 063 275

| | |
|---|---|
| AUTHOR | Kuhn, Beverly T. |
| TITLE | Transportation Education and Outreach Pilot Program Targeting Students in Grades K-12. Final Report. |
| INSTITUTION | Texas A and M Univ., College Station. Texas Transportation Inst. |
| SPONS AGENCY | Department of Transportation, Washington, DC. |
| REPORT NO | SWUTC/99/472840-31 |
| PUB DATE | 1999-09-00 |
| NOTE | 85p.; Support was provided by the University Transportation Centers Program, U.S. Dept. of Transportation, to the Southwest Regional University Transportation Center, Texas Transportation Institute, Texas A&M University. CD-ROM accompanying report is not available through ERIC. |
| CONTRACT | 10727 |
| AVAILABLE FROM | National Technical Information Service, 5285 Port Royal Rd., Springfield, VA 22161 (NTIS Order Noa. PB2000-101091, $33). Tel: 800-553-6847 (Toll Free); Web site: http://www.ntis.gov. |
| PUB TYPE | Reports - Descriptive (141) |
| EDRS PRICE | MF01/PC04 Plus Postage. |
| DESCRIPTORS | Career Education; Elementary Secondary Education; Engineering Education; *Industrial Education; Outreach Programs; Program Evaluation; *School Business Relationship; Science and Society; *Technology Education; *Transportation; *Vocational Education |

ABSTRACT

The transportation engineering profession faces a challenging future in the 21st century. Over the past decade, advances in transportation and technology applications have altered and expanded the list of knowledge, skills, and abilities that transportation professionals must have. The end result is a rapidly changing industry that needs qualified individuals to design, plan, manage, operate, and maintain the vast infrastructure in place. However, a growing concern exists over whether a qualified and skilled work force will be available to meet the demanding future. Such a work force is necessary for the transportation profession to continue to sustain mobility and economic strength across the nation. The purpose of this research was to capitalize on the transportation and educational expertise of the Texas Transportation Institute (TTI) and its staff while utilizing the network of Research Implementation Offices throughout Texas. The objective was to develop and assess a pilot education and outreach program structured to introduce transportation as a necessary component of society and a viable career choice for young people. This report discusses the development of program materials, the process of implementation, and assessment of the educational program. Recommendations for future work are also presented. Two curriculum modules, "The History of Transportation" and "The Human and Transportation," are included as appendices, as are a directory of transit system contacts nationwide, and information in an educational outreach folder which accompanies a CD-ROM. (Author/WRM)

Reproductions supplied by EDRS are the best that can be made
from the original document.

SE

ED 439 912

# TRANSPORTATION EDUCATION AND OUTREACH PILOT PROGRAM TARGETING STUDENTS IN GRADES K-12

## Final Report

By

Beverly T. Kuhn, Ph.D., P.E.
Director, Center for Professional Development
Texas Transportation Institute

U.S. DEPARTMENT OF EDUCATION
Office of Educational Research and Improvement
EDUCATIONAL RESOURCES INFORMATION CENTER (ERIC)
X This document has been reproduced as received from the person or organization originating it.
☐ Minor changes have been made to improve reproduction quality.
• Points of view or opinions stated in this document do not necessarily represent official OERI position or policy.

Prepared for

Southwest Region University Transportation Center
Texas Transportation Institute
The Texas A&M University System
College Station, Texas 77843-3135

Prepared by

Texas Transportation Institute
The Texas A&M University System
College Station, Texas 77843-3135

Study No. SWUTC/99/472840-31

September 1999

96102375

Technical Report Documentation Page

| 1. Report No. | 2. Government Accession No. | 3. Recipient's Catalog No. |
|---|---|---|
| SWUTC/99/472840-00031-1 | | |

| 4. Title and Subtitle | 5. Report Date |
|---|---|
| TRANSPORTATION EDUCATION AND OUTREACH PILOT PROGRAM TARGETING STUDENTS IN GRADES K-12 | September 1999 |
| | 6. Performing Organization Code |
| 7. Author(s) | 8. Performing Organization Report No. |
| Beverly T. Kuhn, Ph.D., P.E. | |
| 9. Performing Organization Name and Address | 10. Work Unit No. (TRAIS) |
| Texas Transportation Institute<br>The Texas A&M University System<br>College Station, Texas 77843-3135 | 11. Contract or Grant No.<br>Contract #: 10727 |
| 12. Sponsoring Agency Name and Address | 13. Type of Report and Period Covered |
| Southwest Region University Transportation Center<br>Texas Transportation Institute<br>The Texas A&M University System<br>College Station, Texas 77843-3135 | 14. Sponsoring Agency Code |

15. Supplementary Notes

Supported by general revenues from the State of Texas.

16. Abstract

The transportation engineering profession, like every other profession, faces a challenging future in the 21st century. Over the past decade, advances in transportation and technology applications have been staggering. These advances have altered and expanded the list of knowledge, skills, and abilities that transportation professionals must have. The end result is a rapidly changing industry that needs qualified individuals to design, plan, manage, operate, and maintain the vast infrastructure in place. However, a growing concern exists over whether a qualified and skilled work force will be available to meet the demanding future. Such a work force is necessary for the transportation profession to continue to sustain mobility and economic strength across the nation. The next generation of transportation professionals is already learning. They are in the nation's elementary, middle, and high schools and face decisions regarding college and careers. Hence, it is in the best interest of the profession for the universities to cultivate new professionals early. By exposing young minds to transportation and the vast array of educational and career opportunities awaiting them, universities can increase the potential work force for the future. In turn, those young students who seek transportation as a career can work to maintain the complex transportation infrastructure in place and ensure mobility and prosperity for the future. This study presents results from the development of an outreach pilot program targeting students in grades K-12. Included in the program are an education and outreach folder with a companion CD-ROM, two educational modules, and a directory providing contacts at transit agencies that participate in school-related programs.

| 17. Key Words | 18. Distribution Statement |
|---|---|
| Transportation Education, College Students, Outreach, Professional Development, Universities, Partnerships | No restrictions. This document is available to the public through NTIS:<br>National Technical Information Service<br>5285 Port Royal Road<br>Springfield, Virginia 22161 |

| 19. Security Classif.(of this report) | 20. Security Classif.(of this page) | 21. No. of Pages | 22. Price |
|---|---|---|---|
| Unclassified | Unclassified | 54 | |

Form DOT F 1700.7 (8-72) Reproduction of completed page authorized

## ABSTRACT

The transportation engineering profession, like every other profession, faces a challenging future in the 21st century. Over the past decade, advances in transportation and technology applications have been staggering. These advances have altered and expanded the list of knowledge, skills, and abilities that transportation professionals must have. The end result is a rapidly changing industry that needs qualified individuals to design, plan, manage, operate, and maintain the vast infrastructure in place. However, a growing concern exists over whether a qualified and skilled work force will be available to meet the demanding future. Such a work force is necessary for the transportation profession to continue to sustain mobility and economic strength across the nation. The next generation of transportation professionals is already learning. They are in the nation's elementary, middle, and high schools and face decisions regarding college and careers. Hence, it is in the best interest of the profession for the universities to cultivate new professionals early. By exposing young minds to transportation and the vast array of educational and career opportunities awaiting them, universities can increase the potential work force for the future. In turn, those young students who seek transportation as a career can work to maintain the complex transportation infrastructure in place and ensure mobility and prosperity for the future. This study presents results from the development of an outreach pilot program targeting students in grades K-12. Included in the program are an education and outreach folder with a companion CD-ROM, two educational modules, and a directory providing contacts at transit agencies that participate in school-related programs.

## ACKNOWLEDGEMENTS

The author recognizes that support was provided by a grant from the U.S. Department of Transportation, University Transportation Centers Program to the Southwest Region University Transportation Center. The author would like to thank the following individuals, without whose assistance this undertaking would not have been possible: John Chivvas, Melisa Finley, Kay Fitzpatrick, Gene Hawkins, Debbie Jasek, Mark Wooldridge, Laura Wright, and Richard Zimmer of TTI College Station; Robert Brydia, Roelof Engelbrecht, and Chris Poe of TransLink® Research Center; Cinde Weatherby of TTI Arlington; Jim Carvell and Bryan Miller of TTI Dallas; John Basilotto of TTI's Center for Ports and Waterways; and Naomi Ledé of TTI.

The study team wishes to acknowledge the cooperation and input of the various universities and organizations that provided venues for project activities, including Texas A&M University, Paul Quinn College, South Knoll Middle School, J. Frank Dobie Middle School, SmartGrrls, and South West Transit Association. Their input was critical to the success of this project and their assistance was appreciated.

## DISCLAIMER

The contents of this report reflect the views of the author, who is responsible for the facts and the accuracy of the information presented herein. This document is disseminated under the sponsorship of the Department of Transportation, University Transportation Centers Program, in the interest of information exchange. Mention of trade names or commercial products does not constitute endorsement or recommendation for use.

## EXECUTIVE SUMMARY

The transportation engineering profession, like every other profession, faces a challenging future in the 21st century. Over the past decade, advances in transportation and technology applications have been staggering. These advances have altered and expanded the list of knowledge, skills, and abilities that transportation professionals must have. The end result is a rapidly changing industry that needs qualified individuals to design, plan, manage, operate, and maintain the vast infrastructure in place. However, a growing concern exists over whether a qualified and skilled work force will be available to meet the demanding future and to continue to sustain mobility and economic strength across the nation.

The next generation of transportation professionals is already learning. They are in the nation's elementary, middle, and high schools and face decisions regarding college and careers. Hence, it is in the best interest of the profession for the universities to cultivate new professionals early. By exposing young minds to transportation and the vast array of educational and career opportunities awaiting them, universities can increase the potential work force for the future. In turn, those young students who seek transportation as a career can work to maintain the complex transportation infrastructure in place and ensure mobility and prosperity for the future.

The purpose of this research was to capitalize on the transportation and educational expertise of the Texas Transportation Institute (TTI) and its staff while utilizing the network of Research Implementation Offices throughout Texas. The objective was to develop and assess a pilot education and outreach program structured to introduce transportation as a necessary component of society and a viable career choice for young people. The goal was to utilize various media and existing and newly developed resources to expose students from kindergarten to high school to the transportation profession.

In this pilot program, educational and outreach materials were developed to target all age groups of students, from kindergarten to high school seniors. These materials included: (1) a compilation of new and existing materials into an education and outreach folder with a companion CD-ROM; (2) two educational modules with presentations, speaker notes, and classroom activities emphasizing the importance of transportation in society and its career

opportunities; and (3) a directory providing contacts at transit agencies that participate in school-related programs.

As part of this project, TTI staff participated in various middle-school and high-school outreach efforts to distribute the educational and outreach materials and promote transportation as a viable career choice. Outreach activities took place at two middle schools and three college campuses, and nearly 100 students hear staff speak on various topics related to transportation over the course of the project. Furthermore, staff participated in technology transfer activities with educators and other professionals who might use the educational materials in existing or future programs. This technology transfer included the distribution of materials to various professionals across the state, the delivery of a teacher enhancement workshop in College Station, and the organization of a Transit in Schools workshop at the South West Transit Association's 1999 Transit Marketing Seminar.

The results presented in this report begin to develop a program for reaching students in grades K-12 and encouraging them to pursue careers in the transportation profession. While most of the outreach and technology activities undertaken during the course of the project took place in the SWUTC region, the materials developed as a result of the project can be used across the nation. Furthermore, mechanisms will soon be in place to provide feedback regarding the content of the materials and to facilitate easy delivery via traditional and non-traditional mechanisms. Finally, it is important to recognize that this pilot program works to meet the goals and objectives of SWUTC and the national Professional Capacity Building program, especially as it relates to educating the future professionals that will design, build, operate, manage, and maintain the transportation infrastructure of the 21st century.

# TABLE OF CONTENTS


ABSTRACT ..... III

ACKNOWLEDGEMENTS ..... IV

DISCLAIMER ..... V

EXECUTIVE SUMMARY ..... VII

TABLE OF CONTENTS ..... IX

LIST OF TABLES ..... X

1. INTRODUCTION ..... 1

1.1 BACKGROUND ..... 1
1.2 PURPOSE ..... 1

2. DEVELOPMENT OF MATERIALS ..... 3

2.1 EDUCATION / OUTREACH FOLDER AND CD-ROM ..... 3
2.2 "THE HISTORY OF TRANSPORTATION" MODULE ..... 4
2.3 "THE HUMAN AND TRANSPORTATION" MODULE ..... 4
2.4 TRANSIT IN SCHOOLS CONTACT DIRECTORY ..... 5

3. OUTREACH AND TECHNOLOGY TRANSFER ..... 7

3.1 OUTREACH ..... 7
3.2 TECHNOLOGY TRANSFER ..... 8
*3.2.1 Distribution of Project Materials ..... 8*
*3.2.2 Teacher Enhancement Workshop ..... 9*
*3.2.3 Transit in Schools Workshop ..... 9*

4. PROGRAM ASSESSMENT ..... 11

5. RECOMMENDATIONS ..... 13

APPENDICES ..... 15

APPENDIX A: EDUCATION / OUTREACH FOLDER AND CD-ROM ..... 17
APPENDIX B: "THE HISTORY OF TRANSPORTATION" MODULE ..... 29
APPENDIX C: "THE HUMAN AND TRANSPORTATION" MODULE ..... 43
APPENDIX D: TRANSIT IN SCHOOLS CONTACT DIRECTORY ..... 55

## LIST OF TABLES


| | Page No. |
|---|---|
| Table 1. Outreach Activities | 7 |
| Table 2. Distribution of Project Materials | 8 |

# 1. INTRODUCTION

The transportation engineering profession, like every other profession, faces a challenging future in the 21st century. Over the past decade, advances in transportation and technology applications have been staggering. These advances have altered and expanded the list of knowledge, skills, and abilities that transportation professionals must have. The end result is a rapidly changing industry that needs qualified individuals to design, plan, manage, operate, and maintain the vast infrastructure in place. However, a growing concern exists over whether a qualified and skilled work force will be available to meet the demanding future. Such a work force is necessary for the transportation profession to continue to sustain mobility and economic strength across the nation.

## 1.1 BACKGROUND

The next generation of transportation professionals is already learning. They are in the nation's elementary, middle, and high schools and face decisions regarding college and careers. Hence, it is in the best interest of the profession for the universities to cultivate new professionals early. By exposing young minds to transportation and the vast array of educational and career opportunities awaiting them, universities can increase the potential work force for the future. In turn, those young students who seek transportation as a career can work to maintain the complex transportation infrastructure in place and ensure mobility and prosperity for the future.

## 1.2 PURPOSE

The purpose of this research was to capitalize on the transportation and educational expertise of the Texas Transportation Institute (TTI) and its staff while utilizing the network of Research Implementation Offices throughout Texas. The objective was to develop and assess a pilot education and outreach program structured to introduce transportation as a necessary component of society and a viable career choice for young people. The goal was to utilize

various media and existing and newly developed resources to expose students from kindergarten to high school to the transportation profession. Once developed, various components of the program appropriate for electronic distribution would be made accessible to educators, students, and the general public via the Internet.

# 2. DEVELOPMENT OF MATERIALS

In this pilot program, educational and outreach materials were developed to target all age groups of students, from kindergarten to high school seniors. Such materials included a compilation of new and existing materials, presentations with speaker notes, and classroom activities emphasizing the importance of transportation in society and its career opportunities. The following sections provide a description of the materials developed under this task of the project.

## 2.1 EDUCATION / OUTREACH FOLDER AND CD-ROM

To facilitate the delivery of educational and outreach efforts by TTI staff and other transportation professionals, the project team prepared a folder for use in such activities. It was anticipated that TTI staff and others would use the materials in the folder when making transportation-related presentations to groups of students in the target age group. Potential opportunities for making presentations included, but are not limited to, National Engineers Week, National Transportation Week, and career days at local schools.

The folder contained a message from the principal investigator outlining the goals of the project and the intended use of the materials. The folder also included: a list of all the materials included in the folder; suggested activities for introducing students to transportation; a list of Internet sites for reference and resource purposes; an After Event Report (to be completed by the presenter); and an Event Feedback Report (to be completed by the educator associated with the presentation). Those contents of the folder that were generated under this project are included in Appendix A.

Upon investigation of a number of Internet sites, the project team discovered a wealth of resources for making presentations to students about the transportation industry and profession. The team assembled a variety of these resources for the folder. These materials included resources from the Garrett A. Morgan Technology and Transportation Futures Program. This program is an initiative by the U.S. Department of Transportation to introduce students and the public to the transportation industry.

The project team also prepared a CD-ROM for distribution with the education and outreach folder. This CD-ROM contained electronic versions of various forms, activities, and modules so users can easily access the materials. A list of those materials included on the CD-ROM is included in Appendix A. It is anticipated that as educational related materials are developed, they will be included on the CD-ROM to ensure accessibility by potential users.

## 2.2 "THE HISTORY OF TRANSPORTATION" MODULE

The project team developed an educational module on the history of transportation. The module briefly covers the history of transportation from the first use of paved roads to the modern Interstate system. It was developed at the request of a TTI staff member for use during the 1999 Summer Transportation Institute, hosted by Texas Transportation Institute with Texas Southern University and Paul Quinn College. The target audience for the module is junior high and high school students and consists of a Microsoft PowerPoint presentation and speaker notes. A copy of the module, complete with slides and speaker notes, is located in Appendix B.

The presentation was used during the Institute hosted in Dallas, and an electronic version of the module will be posted on the Center for Professional Development's Internet site in the near future. The URL for the site is http://tti.tamu.edu/inside/centers/cpd. The module will be posted with other educational resources on the site and visitors can download the module directly. A form will be posted along with the module to track access and usage. Information requested of a user will include contact information and the intended use of the module.

## 2.3 "THE HUMAN AND TRANSPORTATION" MODULE

The project team developed an education module entitled "The Human and Transportation." The objective of the module is to provide information on the critical link between the human and the design and operations of transportation facilities. The target audience for this module is students in middle school, though it is adaptable to all age groups.

The module includes instructions and suggestions for making a presentation on human factors and transportation along with several activities for students. One activity is "Fun With Signs" where students select the intended message of a sign from a list of suggestions. A slide

activity was also provided in which students have approximately one second to view a sign and must write down the features the remember about the sign. Both of these exercises are intended to illustrate the various colors and symbols used in traffic signs and the importance of recognizing signs in a short time period.

The third exercise is the occlusion activity, where students must maneuver through an obstacle course using only brief glimpses at the course. The objective is to illustrate to students that the more complex the course, the more difficult it is for them to navigate it without mistakes. The intent is to demonstrate the importance of providing information to drivers in a clear and concise manner. The module also includes facts about human factors and transportation that a presenter can use as notes and give to students for their reference. The materials included in this module are provided in Appendix C and electronic versions of the module are posted on the Center's Internet site.

## 2.4 TRANSIT IN SCHOOLS CONTACT DIRECTORY

The project team developed a workshop that was held in conjunction with the South West Transit Association's 1999 Transit Marketing Seminar. As part of this workshop, the research team conducted a survey of transit agencies across the country to identify those public transit systems that have programs and projects that target schools. The survey requested information on the transit system and contact information for the individual most responsible for school programs or projects. The respondent was also asked to identify the type of school program undertaken by the system. The survey was sent to over 800 individuals who are either transit marketing professionals or managers in rural, small urban, and urban transit agencies. Approximately sixty-five (65) agencies responded to the survey with information regarding their school programs. A copy of the survey is located in Appendix D.

The results from the survey were compiled into a directory. The intent of the directory is to provide information and to encourage networking and a continual exchange of ideas between transit agencies to finding successful ways of involving schools in transit system activities. A copy of the directory is located in Appendix D and plans are to post the directory on the Center for Professional Development's Internet site in the near future. It is also anticipated that a form

will be provided on the site so transit agencies can update or add to the directory as programs change and grow.

# 3. OUTREACH AND TECHNOLOGY TRANSFER

One of the objectives of this project was to distribute the educational and outreach materials developed as part of this pilot program to universities, schools, and professionals for use in various activities. Specific outreach activities undertaken by TTI staff using these materials as part of this project were also monitored and assessed for success and appropriate. The following sections provide a summary of those outreach and technology transfer activities that took place under the coordination of the project.

## 3.1 OUTREACH

Several outreach activities occurred during the course of the project. Institute staff participated in the various middle-school and high-school outreach efforts which are listed in Table 1. Materials developed as part of this project were used in some of these presentations.

**Table 1. Outreach Activities**

| Program/Event | Location | Activity | No. of Students & Grade |
|---|---|---|---|
| National Engineers Week | South Knoll Middle School, College Station, Texas | Presentation of traffic signs and signals. Students learned the principles of retroreflectivity and discussed seat belt safety. | 20 Students 3rd Grade |
| Expanding Your Horizons Conference | Texas A&M University College Station, Texas | The Human and Transportation. Students learned the importance of the human in designing and operating a transportation system. | 24 Students 6th Grade |
| SmartGrrls | J. Frank Dobie Middle School Austin, Texas | The Human and Transportation. Students learned the importance of the human in designing and operating a transportation system. | 18 Students 6th – 8th Grade |
| 1999 Texas Summer Transportation Institute | Texas A&M University College Station, Texas<br>---<br>Paul Quinn College Dallas, Texas | Students learned about and toured TTI, TransLink®, Riverside, ALERT, and participated in traffic signal exercises. | 35 Students 9th – 12th Grade |


BEST COPY AVAILABLE

## 3.2 TECHNOLOGY TRANSFER

For outreach activities to be successful, education materials must be disseminated to transportation professionals who will use them appropriately. During the course of this project, technology transfer took place through the distribution of project materials to those who might use them in educational activities and through the Transit in Schools workshop. The following sections give a brief summary of the technology transfer activities undertaken during the project.

### 3.2.1 Distribution of Project Materials

As noted previously, various education and outreach materials were developed during the course of this project. Table 2 provides a summary of the distribution of these materials to transportation professionals with the intent of using them for education activities.

**Table 2. Distribution of Project Materials**

| Project Material | Number Distributed | Recipient | Method of Delivery |
|---|---|---|---|
| Education / Outreach Folder | 7 | TTI Offices | Surface Mail |
| | 7 | DART Community Affairs Office | Hand Delivery |
| | 3 | TxDOT Public Affairs Office | Hand Delivery |
| | 60 | Transit Marketing Professionals | Transit in Schools Workshop |
| Education / Outreach CD-ROM | 7 | TTI Offices | Surface Mail |
| | 7 | DART Community Affairs Office | Hand Delivery |
| The Human and Transportation | 10 | College Station Area Teachers | Teacher Enhancement Workshop |

### 3.2.2 Teacher Enhancement Workshop

TTI staff participated in a Teacher Enhancement Workshop organized by Texas A&M University. The objective of the workshop is to provide area educators with presentations and hands-on activities they can use in the classroom to enhance their programs on math and science. As part of the workshop, materials for "The Human and Transportation" education module were provided to participating teachers for their use.

### 3.2.3 Transit in Schools Workshop

As noted previously, the project team developed a workshop that was held in conjunction with the South West Transit Association's 1999 Transit Marketing Seminar. The workshop was held on Monday, August 23, 1999 in New Orleans, Louisiana at the Marketing Seminar. The workshop, entitled "Transit in the Schools: Curriculum Development and Other Projects," was attended by approximately 60 seminar attendees. Workshop leaders were Beverly Kuhn, Director of the Center for Professional Development, TTI, and Cinde Weatherby, Manager of the Institutional Policy Program, TTI.

The workshop began with Beverly Kuhn providing a summary of research and recent programs at the Center which provide outreach and education at the K-12 level. Ms. Sally Valenzuela of SunTran in Tucson, Arizona followed with an overview of SunTran's high school curriculum. Ms. Jerri Ann Jones of VIA in San Antonio, Texas also discussed VIA's Metropolitan Transit's Classroom on Wheels. Two roundtable discussions were also on the workshop agenda where participants could discuss poster and poetry contests and career day activities. As part of the workshop, attendees received the following:

- a copy of the Education / Outreach Folder developed as part of this project with an emphasis on transit-related information;
- a complete copy of the materials included in the Garrett A. Morgan Transportation Technology and Futures Program folder distributed by Federal Highway Administration;

- a packet containing information on the 1999 Summer Transportation Institute hosted by Texas Transportation Institute, Texas Southern University, and Paul Quinn College with contact information for other STIs across the country; and
- a copy of the Transit in Schools directory developed under this project.

The workshop was well received by attendees and the South West Transit Association, and ideas and information were shared by all who attended. The activity provided the project team with the opportunity to make contacts in the transit community as well as provide information and resources to those transit systems interested in involving schools in marketing and educational activities. The posting of the directory on the Internet along with a form for agencies to update or add to their entry will help provide current and useful information to a large audience in an easily accessible format.

# 4. PROGRAM ASSESSMENT

One way in which the pilot program was assessed was through the use of After Event Reports and Event Feedback Reports. Each TTI staff member who participated in an outreach effort was asked to complete an After Event Report to provide specific information about the activity and whether the event was well-received by the students and educator(s) associated with the audience. For those outreach activities that were reported in the previous section, After Event Reports were received from staff for all but those associated with the 1999 Texas Summer Transportation Institute. In all other cases, the students seemed to enjoy the presentations and activities and the outreach efforts were a success. No Event Feedback Reports were received from contact educators.

It is hoped that as TTI staff and other professionals use the materials, they will provide feedback and suggestions for improving the resources so as to maximize the impact of their use with audiences of all appropriate ages. To facilitate this feedback, a form will be posted on the Center's Internet site in the near future and included in materials mailed to users for their use.

# 5. RECOMMENDATIONS

The results presented in this report begin to develop a program for reaching students in grades K-12 and encouraging them to pursue careers in the transportation profession. While most of the outreach and technology activities undertaken during the course of the project took place in the SWUTC region, the materials developed as a result of the project can be used across the nation. Furthermore, mechanisms will soon be in place to provide feedback regarding the content of the materials and to facilitate easy delivery via traditional and non-traditional mechanisms. Finally, it is important to recognize that this pilot program works to meet the goals and objectives of SWUTC and the national Professional Capacity Building program, especially as it relates to educating the future professionals that will design, build, operate, manage, and maintain the transportation infrastructure of the 21st century.

# APPENDICES

## APPENDIX A: EDUCATION / OUTREACH FOLDER AND CD-ROM

**SWUTC Project #472840-31**

**Transportation Education and Outreach Pilot Program Targeting Students in Grades K-12**

Thanks for expressing an interest in participating in this project. We hope to reach many young people in Texas and interest them in becoming part of the transportation profession.

**Products and Activities**

Feel free to use any of the products, information, and ideas enclosed in this packet. I tried to assemble a variety of things that might interest all ages. Have fun and be creative!

If you give a presentation to any group and develop your own material, please forward a copy of it to me. I would like to continue to add to this packet, and your ideas are welcome.

**Event Forms**

When you give a presentation, please fill out an After Event Report and send it to me. This is important for monitoring the number of students we reach. Also, have the teacher fill out one of the Event Feedback Reports and send it to me. This will help us gauge the success of our activities and establish a relationship with these teachers for future programs.

If you have any questions, comments, concerns, or ideas, don't hesitate to call me. I look forward to hearing from you and thank you again for your willingness to participate.

Sincerely,

Beverly Kuhn

BEST COPY AVAILABLE

**SWUTC Project #472840-31**

**Transportation Education and Outreach Pilot Program Targeting Students in Grades K-12**

**Folder Contents**

- Internet Resources
- After Event Report - To Be Completed by Presenter
- Event Feedback Report - To Be Completed by School Contact
- "Sharing Science with Children: A Survival Guide for Scientists and Engineers"
- Garrett A. Morgan Folder
  - Talking to Students About Transportation Careers
    - Grades K-5
    - Grades 6-8
    - Grades 9-12
  - "Garrett A. Morgan Technology and Transportation Futures Program - At A Glance"
  - "An American Inventor"
  - "How to Introduce Children to Transportation Careers"
  - Garrett A. Morgan Speakers' Bureau Profile Sheet
- *Careers in Transportation*
- *The Future of Transportation Starts Here - Intelligent Transportation Systems*
- *Clean Cities* CD-ROM
- Sample Products & Activities
  - Career Bookmarks (Appropriate for Grades 6-8, 9-12)
  - Garrett A. Morgan Bookmarks (Appropriate for Grades K-5)
  - Mode Bookmarks (Appropriate for Grades K-5, 6-8, 9-12)
  - "On The Move" Word Find (Appropriate for Grades 6-8, 9-12)

***Aviation Activities***

- Flight (Appropriate for Grades K-5, 6-8)
- Styrofoam Wright 1903 Flyer Project (Appropriate for Grades 6-8, 9-12)
- Wilbur & Orville Wright Activity Booklet (Appropriate for Grades 6-8, 9-12)
- Which is stronger, you or air? Activity (Appropriate for Grades K-5)

- Hovercraft Activity (Appropriate for Grades 6-8)

***Transit Activities***

- FTA Mass Transportation History (Appropriate for Grades K-5, 6-8)
- Test Your Transit Memory - Quiz & Answers (Appropriate for Grades K-5, 6-8)
- Transit Dictionary (Appropriate for Grades K-5)
- Highway Post Office Bus (Appropriate for Grades K-5, 6-8, 9-12)

***Highway & Safety Activities***

- Highway Knowledge Quiz (Appropriate for Grades 6-8, 9-12)
- ITS for Kids (Appropriate for Grades 6-8, 9-12)
- Interesting Facts (Appropriate for Grades K-5, 6-8)
- What is a No Zone (Appropriate for Grades K-5, 6-8, 9-12)
- No Zone Certificate (Appropriate for Grades K-5, 6-8, 9-12)
- No Zone Bookmarks (Appropriate for Grades K-5, 6-8, 9-12)
- Bridges: How do different bridge designs work? (Appropriate for Grades 9-12)
- Electric Cars (Appropriate for Grades 9-12)
- Air Bags and Collisions (Appropriate for Grades 9-12)
- Human Eye (Appropriate for Grades 9-12)
- Why Seat Belts? (Appropriate for Grades 9-12)
- A Career for You (Appropriate for Grades 6-8, 9-12)

***Human Factors and Transportation Activities***

- "Fun with Signs"
- Student Activities
- Human Factors and Transportation: Facts and Tidbits

***Marine Activities***

- Name the Parts of a Ship (Appropriate for Grades K-5)
- Locks and Dams (Appropriate for Grades 9-12)

***CD-ROM With Following Files***

- "The Transportation Profession" Education Module (MS PowerPoint)
- "Intelligent Transportation Systems" Education Module (MS PowerPoint)
- ITS Exercises (Adobe Acrobat)
- After Event Report (MS Word)
- Event Feedback Report (MS Word)
- Garrett A. Morgan Speakers' Bureau Profile Sheet (MS Word)
- Career Bookmarks (Adobe Acrobat)
- Garrett A. Morgan Bookmarks (Adobe Acrobat)

- Mode Bookmarks (Adobe Acrobat)
- Transit Quiz & Answers (Adobe Acrobat)
- Name the Parts of a Ship (Adobe Acrobat)
- No Zone Certificates (Adobe Acrobat)
- No Zone Bookmarks (Adobe Acrobat)
- "Fun With Signs" (Adobe Acrobat)
- "Human Factors and Transportation" Facts and Tidbits (Adobe Acrobat)
- "Human Factors and Transportation" Activities (Adobe Acrobat)
- "Engineer Working" Signs (Adobe Acrobat)
- "Women Working" Signs (Adobe Acrobat)
- "On The Move" Word Find & Key (Adobe Acrobat)

**SWUTC Project #472840-31**

**Transportation Education and Outreach Pilot Program Targeting Students in Grades K-12**

**Additional Suggested Activities:**

- Take core samples to show students what the road is made of.
- Take types of traffic signs and talk about how we use shapes and colors to mean different things and how big some of them are.
- Take pavement tape, reflectors, or samples of reflective sheeting, a flashlight, and a magnifying glass to show what they are made of and how they work.
- Take a signal head and talk about arrangement of lamps, their size, etc.
- Wear a hard hat or vest to demonstrate a "uniform."
- Talk about magnetism, electricity, inductance, etc. by designing a loop detector system.
- Talk about computers by showing controllers and simulation models and how they work.

## Internet Resources

- http://www.dot.gov/edu/
  Garrett A. Morgan Technology and Transportation Futures Program
- http://www.fhwa.dot.gov/education/
  Federal Highway Administration Education Site
- http://tti.tamu.edu/
  Texas Transportation Institute
- http://www.faa.gov/education/
  Federal Aviation Administration Education Site
- http://www.bts.gov/edu/
  Bureau of Transportation Statistics Education Site
- http://www.fta.dot.gov/transcity/
  Federal Transit Administration Education Site
- http://fra.dot.gov/s/edu/
  Federal Railroad Administration Education Site
- http://www.uscg.mil/edu/edindex.html
  U.S. Coast Guard Education Site
- http://www.dot.gov/slsdc/
  Saint Lawrence Seaway Development Corporation Education Site
- http://marad.dot.gov/kids.html
  U.S. Maritime Administration Education Site
- http://www.nhtsa.dot.gov/kids/
  National Highway Traffic Safety Administration Education Site
- http://dothr.ost.dot.gov/Careers/main_c.htm
  U.S. DOT Careers in Transportation Site
- http://www.nas.edu/rise/
  Resources for Involving Scientists in Education
- http://www.ed.gov/free/
  Federal Resources for Educational Excellence

## Transportation Education and Outreach Pilot Program Targeting Students in Grades K-12

**TTI Project No. 472840-31**

**AFTER EVENT REPORT**

**Name** _____ **Date of Event** _____

**School Name** _____

**School Address** _____

_____

_____

**School Contact** _____

**Grade** _____ **Subject Class** _____

**No. of Students** _____

**Nature of Event** _____

**Do the students have access to the internet at this school?** ☐ Yes ☐ No ☐ Unknown

**Briefly discuss how the event was received.**

_____

_____

_____

_____

_____

_____

_____

_____

**After event, please submit this form to:**

**Beverly T. Kuhn**
**Texas Transportation Institute**
**7715 Chevy Chase Drive, Suite 4.160**
**Austin, TX 78752**
**Phone: (512) 467-0946**
**Fax: (512) 467-8971**
**E-Mail: B-Kuhn@tamu.edu**

**Transportation Education and Outreach Pilot Program Targeting Students in Grades K-12**

**TTI Project No. 472840-31**

## EVENT FEEDBACK REPORT

**Name** _____ **Date of Event** _____

**School Name** _____ **School Address** _____

**Grade** _____ _____

**Subject Class** _____ _____

**No. of Students** _____

**TTI Contact** _____

**Nature of Event** _____

**Did you find the event interesting and informative for your students?** ☐ Yes ☐ No

**Was the information presented at the appropriate knowledge level for your students?** ☐ Yes ☐ No

**Was the TTI Contact helpful in scheduling and coordinating the event?** ☐ Yes ☐ No

**Would you like your class to participate in this event again?** ☐ Yes ☐ No

**Please provide comments and suggestions that will help us improve this event and list any other events you might like to see presented in the future.**

_____

_____

_____

_____

_____

_____

**After event, please submit this form to:**

**Beverly T. Kuhn**
**Texas Transportation Institute**
**7715 Chevy Chase Drive, Suite 4.160**
**Austin, TX 78752**
**Phone: (512) 467-0946**
**Fax: (512) 467-8971**
**E-Mail:** B-Kuhn@tamu.edu

**Bookmarks and Handouts**

Visit the Garrett A. Morgan

## TRANSPORTATION WONDERLAND

Learn How We Move Everything, Everywhere

**http://www.dot.gov/edu/k5/gamk5.ht**

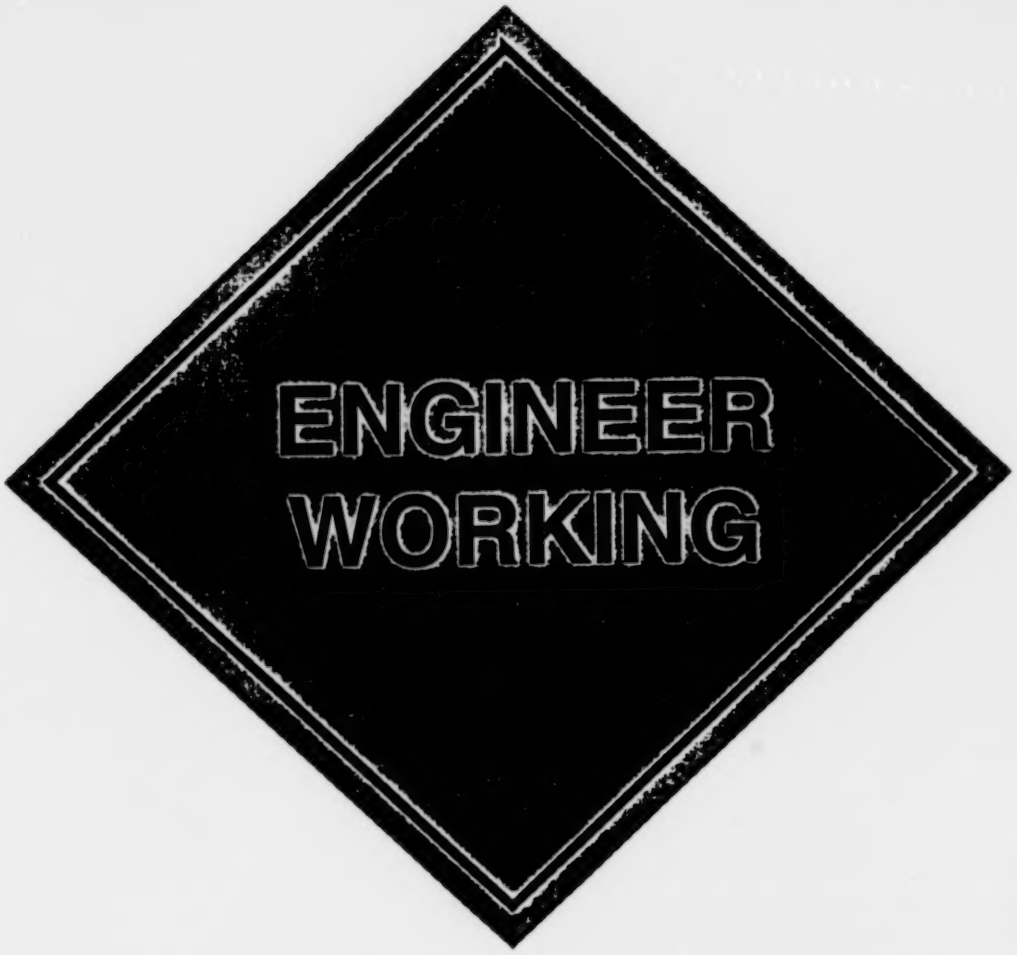
**How Can I Get**

Visit the Garrett A. Morgan

## CAREERS IN TRANSPORTATION WEB SITE

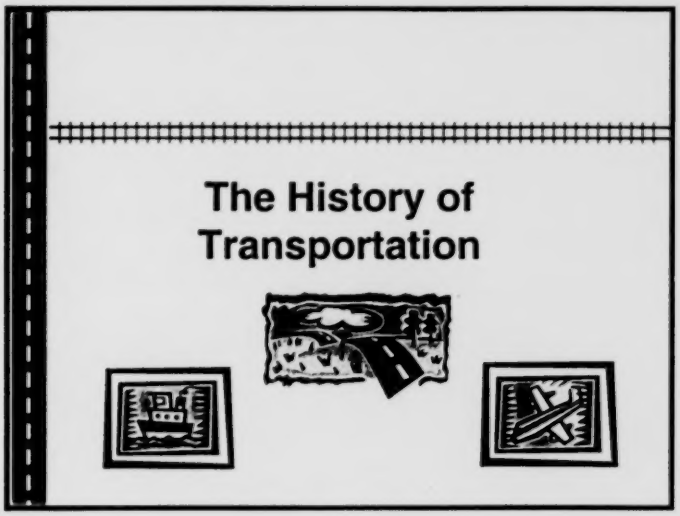
**http://www.dot.gov/edu/**

Learn How We Move Everything, Everywhere

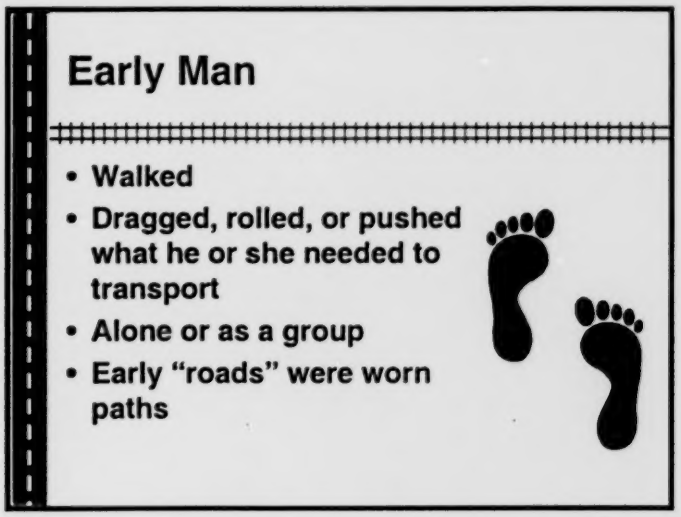



BEST COPY AVAILABLE

## APPENDIX B: "THE HISTORY OF TRANSPORTATION" MODULE

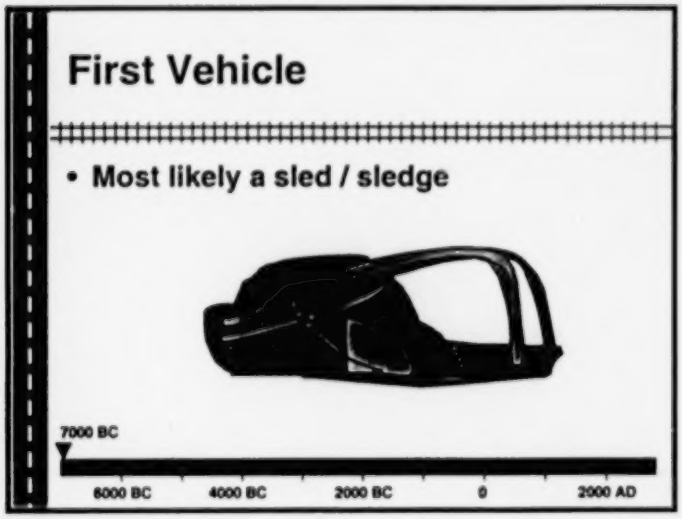



**Slide 1: The History of Transportation**


Early Man
• Walked
• Dragged, rolled, or pushed what he or she needed to transport
• Alone or as a group
• Early "roads" were worn paths

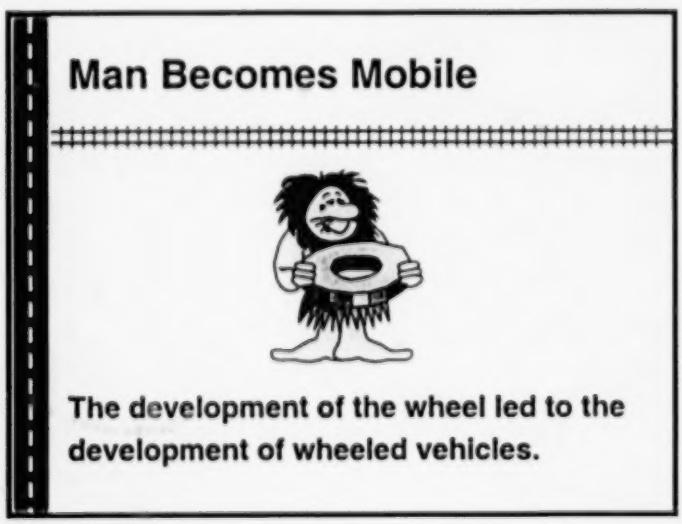
**Slide 2: Early Man**

- Walked to transport himself.
- Dragged, rolled, or pushed what he or she needed to transport.
- If things needed to be hauled (including himself), it could be done by others under his direction.
- Early "roads" were worn paths.



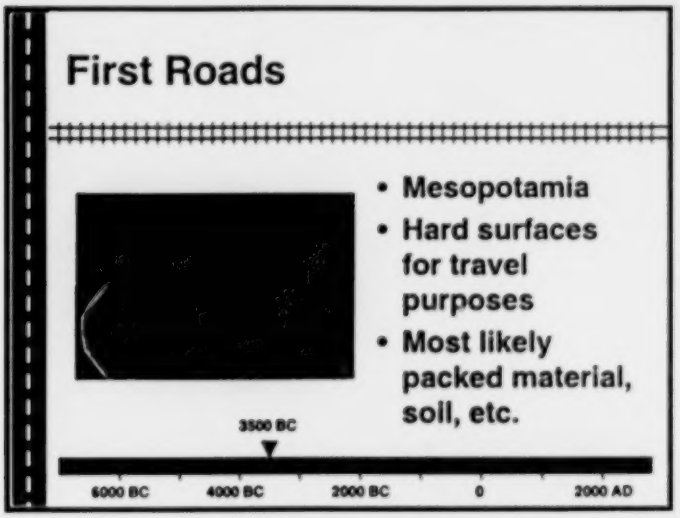

**Slide 3: First Vehicle**

- The first vehicle was most likely the sled or sledge used for hauling.
- Probably invented around 7000 BC.



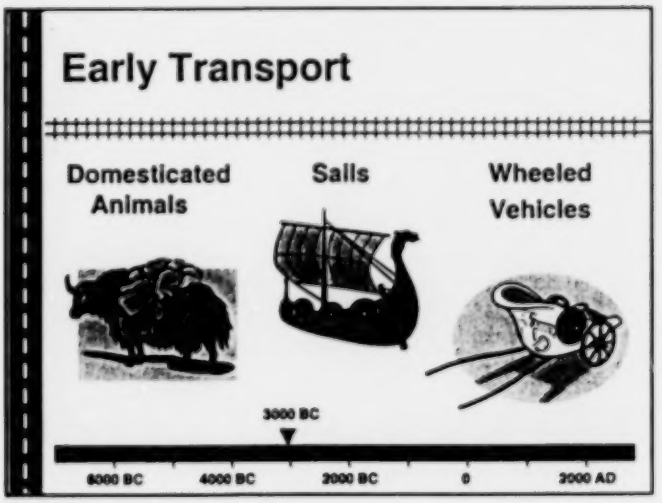

**Slide 4: Man Becomes Mobile**

- The development of the wheel led to the development of wheeled vehicles.



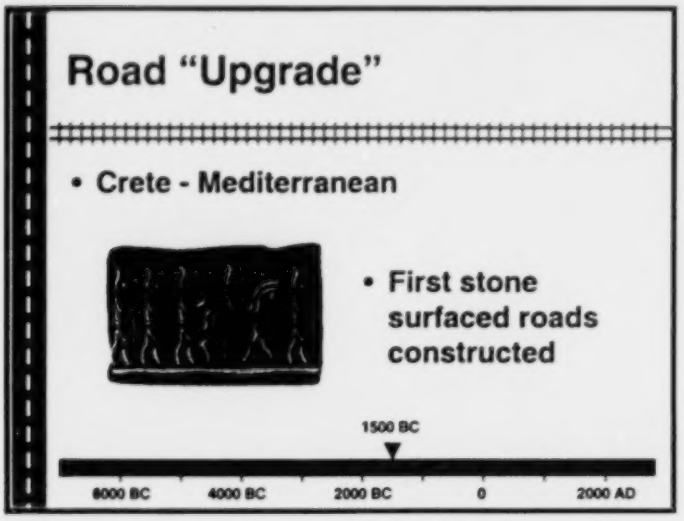

**Slide 5: First Roads**

- Mesopotamia; 3500 BC.
- First hard surfaces for travel purposes.
- Most likely packed material, soil, etc.



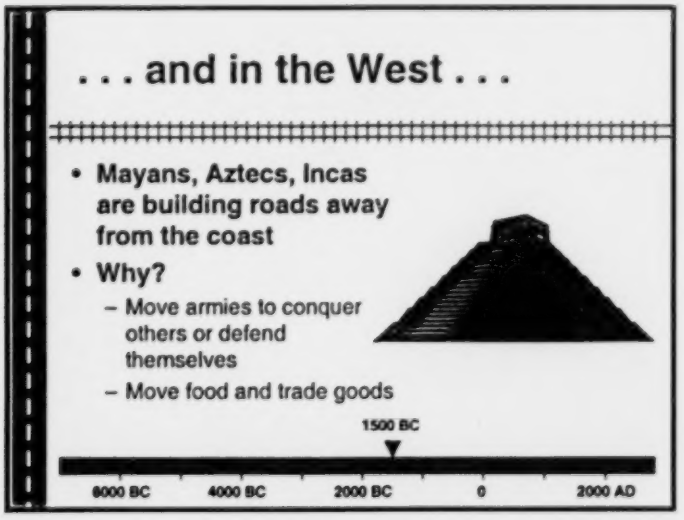

**Slide 6: Early Transport**

- By 3000 BC
- Domesticated animals were made beasts of burden.
- Sails & wheeled vehicles developed at this time.



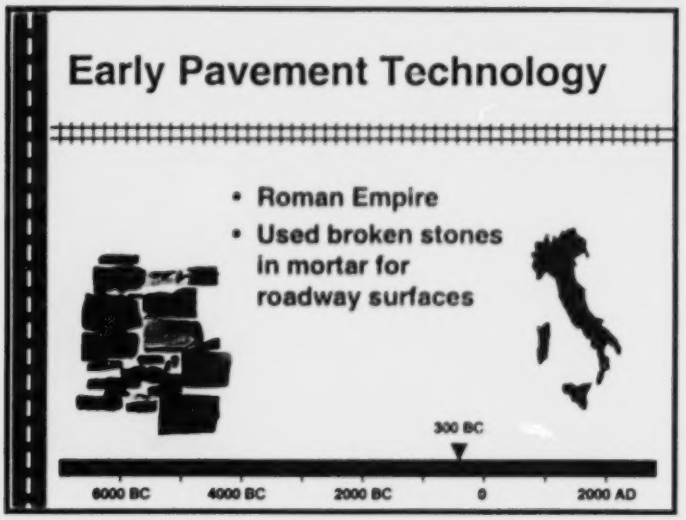

**Slide 7: Road "Upgrade"**

- Crete – Mediterranean; 1500 BC.
- First stone surfaced roads constructed.


. . . and in the West . . .
• Mayans, Aztecs, Incas are building roads away from the coast
• Why?
– Move armies to conquer others or defend themselves
– Move food and trade goods
1500 BC
6000 BC
4000 BC
2000 BC
0
2000 AD

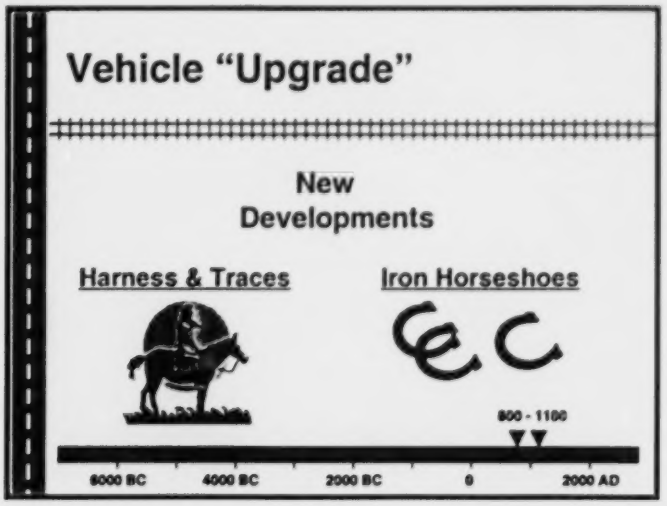
**Slide 8: . . . and in the West . . .**

- The Mayans, Aztecs, and Incas are building roads away from the coast
- Needed to move their armies to either conquer others or to defend themselves.
- Needed to move food and trade goods.



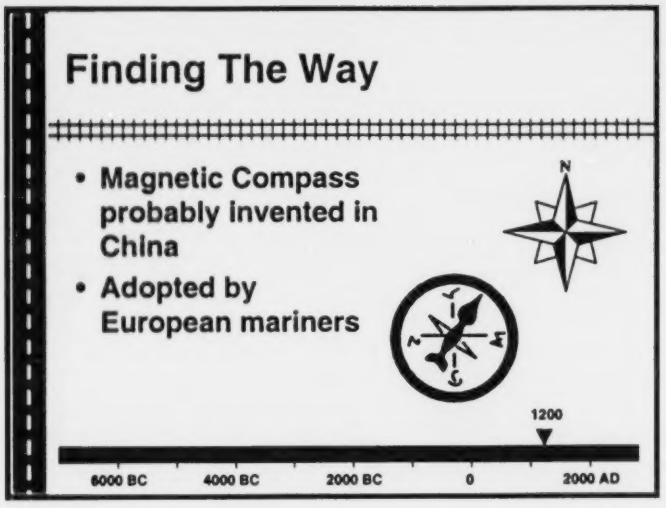

**Slide 9: Early Pavement Technology**

- Roman Empire; 300 BC.
- Using broken stones in mortar for roadway surfaces.
- An early advancement in pavement technology.



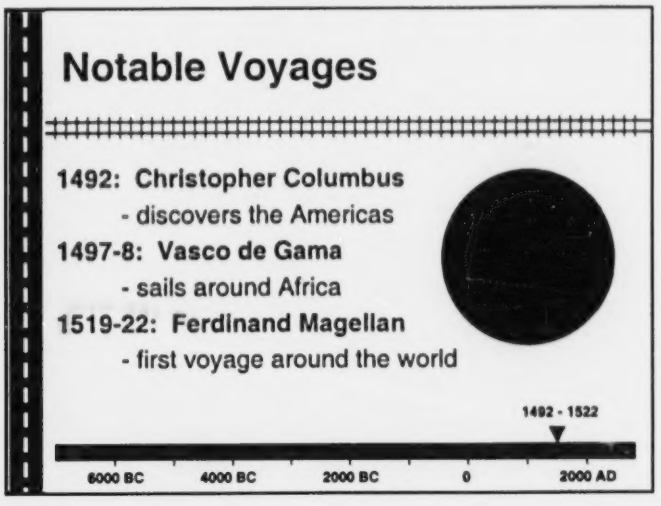

**Slide 10: Vehicle "Upgrade"**

- New developments between AD 800 and 1100.
- The modern horse harness and traces along with nailed iron horseshoes are developed during this period.



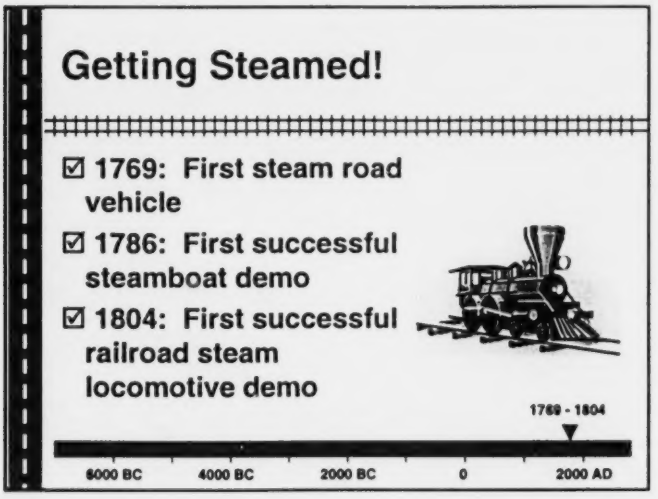

**Slide 11: Finding the Way**

- In 1200, the magnetic compass is invented, probably in China.
- It was adopted by European mariners for navigation.



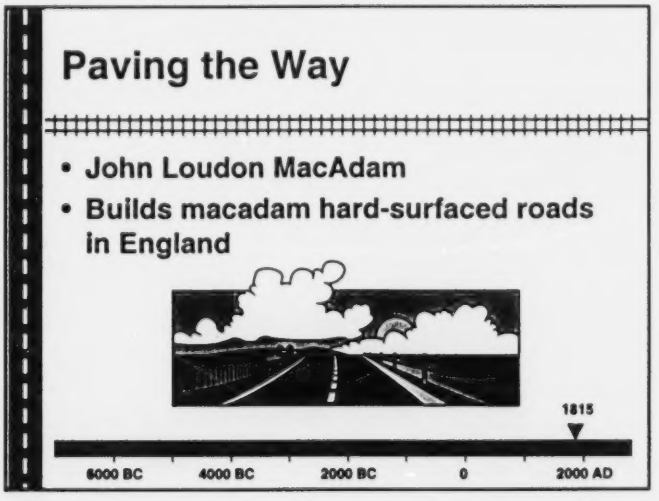

**Slide 12: Notable Voyages**

- 1492 - Christopher Columbus: discovers the Americas.
- 1497-1498 - Vasco de Gama: sails around Africa and established trade route to the Orient.
- 1519-1522 - Ferdinand Magellan: first voyage around the world.



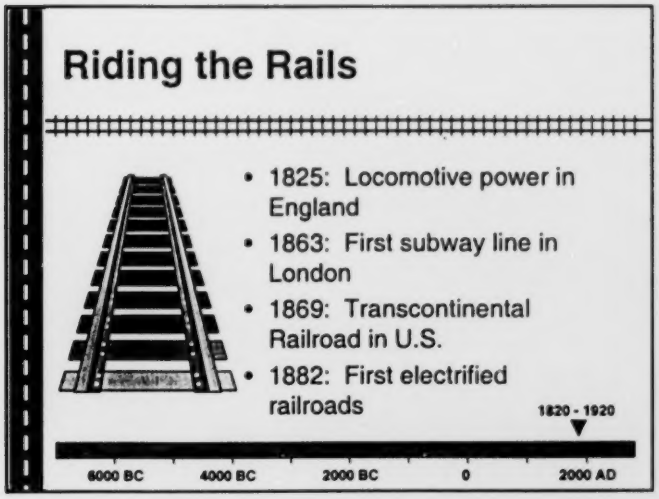

**Slide 13: Getting Steamed!**

- 1769: First steam road vehicle demonstrated by Nicolas Cugnot in Paris.
- 1786: First successful steamboat demonstrated by John Fitch on Delaware River.
- 1804: First successful railroad steam locomotive demonstrated by Richard Trevithick in Wales



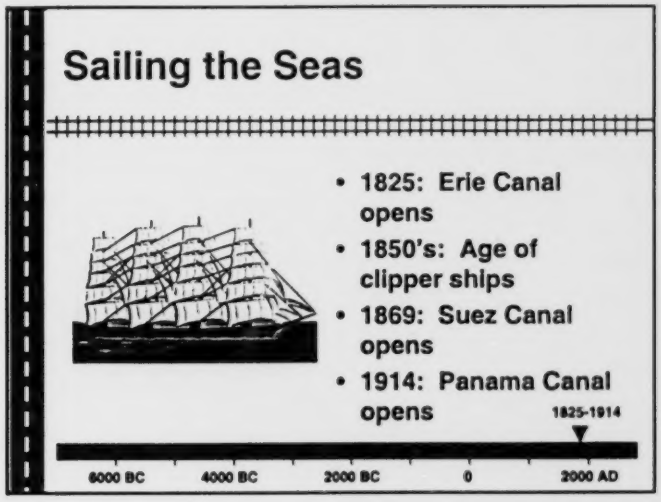

**Slide 14: Paving the Way**

- John Loudon MacAdam: 1815.
- Builds macadam hard-surfaced roads in England.
- The beginning of the modern pavement era.



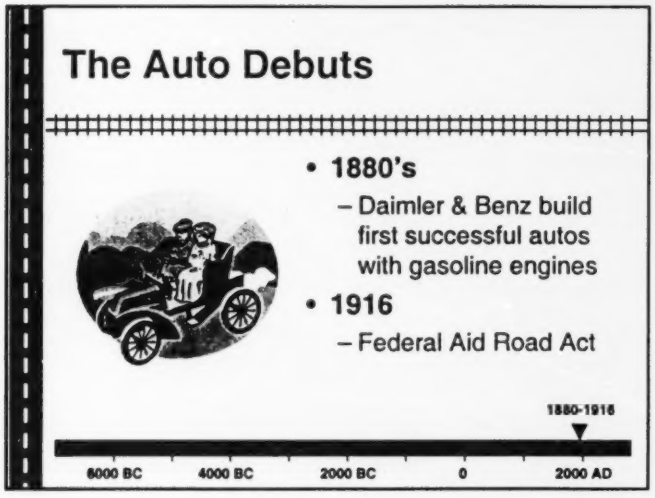

**Slide 15: Riding the Rails**

- The Railroad Era: 1820-1920
- 1825: Stockton and Darlington Railway in England becomes the first common carrier to use locomotive power'
- 1863: First subway line opens in London.
- 1869: Transcontinental railroad completed in the United States.
- 1882-1883: First electrified railroads open in England and Ireland.



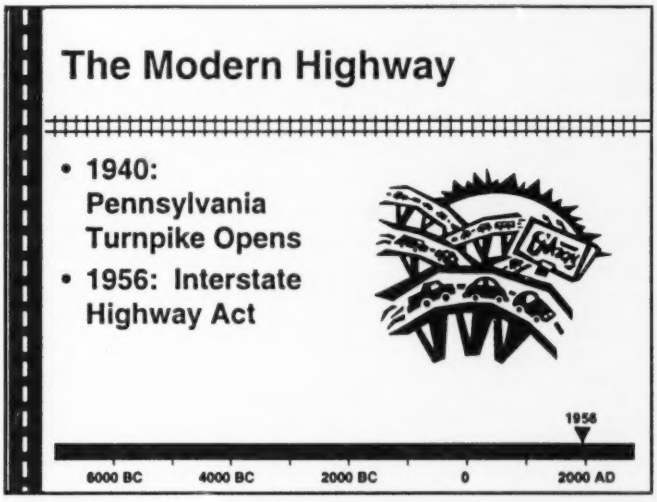

**Slide 16: Sailing the Seas**

- 1825: Erie Canal opens.
- 1850's: Age of clipper ships.
- 1869: Suez Canal opens.
- 1914: Panama Canal opens.



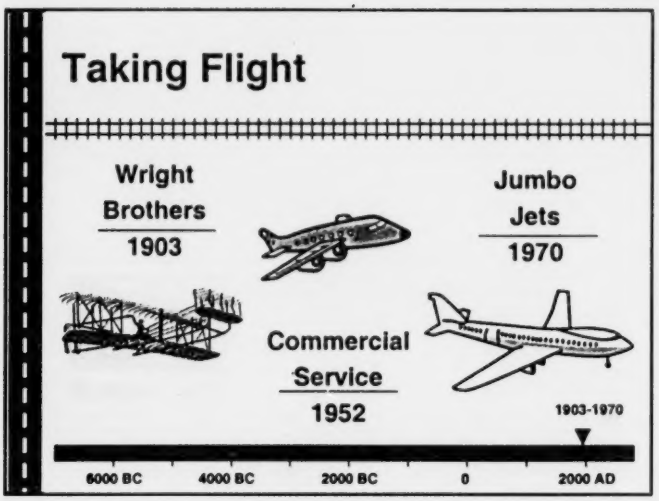

**Slide 17: The Auto Debuts**

- 1880's: Daimler and Benz in Germany build the first successful automobiles with gasoline engines.
- 1916: Congress passes the Federal Aid Road Act which allocates funding for roadway construction.



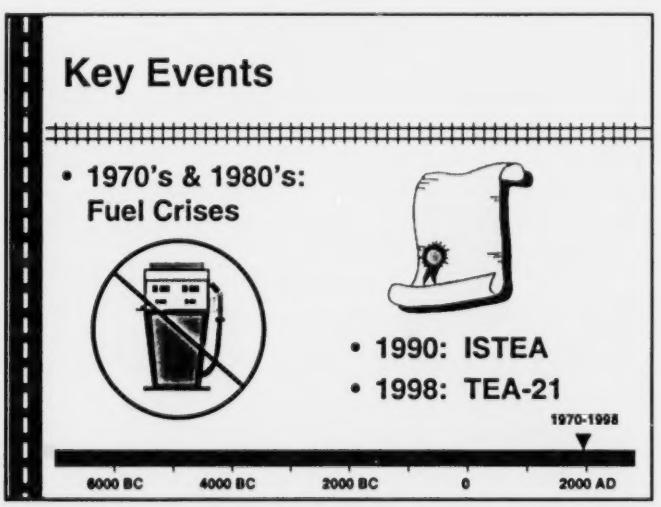

**Slide 18: The Modern Highway**

- 1940: Pennsylvania Turnpike Opens - one of the first expressways in the United States.
- 1956: Interstate Highway Act passed by Congress.
- Largest public works project in history.
- 40,000 miles of interstate highways.



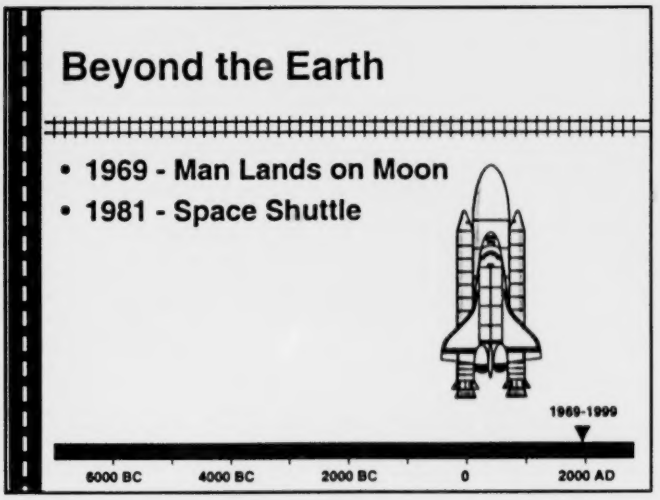

**Slide 19: Taking Flight**

- 1903: The Wright Brothers make first airplane flight at Kitty Hawk, North Carolina.
- 1952: First commercial jet service, using British DeHavilland Comet.
- 1970: First jumbo jet (Boeing 747) air service.



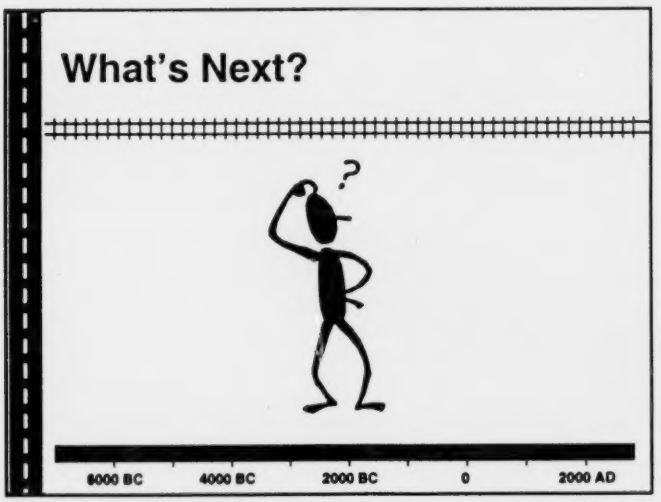

**Slide 20: Key Events**

- 1970's & 1980's: Fuel Crises / Lines at gas pumps.
- 1990: ISTEA - Intermodal Surface Transportation Efficiency Act - end of construction era of the Interstate system and a shift toward maintenance and efficiency – ITS.
- 1998: TEA-21: Transportation Equity Act for the 21st century.




**Slide 21: Beyond the Earth**

- 1969: Man Lands on the Moon.
- 1981: Space Shuttle Columbia - reusable vehicle for space exploration.




**Slide 22: What Next?**

## APPENDIX C: "THE HUMAN AND TRANSPORTATION" MODULE

**PRESENTATION:** THE HUMAN AND THE ROAD
**CAREER:** TRANSPORTATION ENGINEERING
**ACTIVITIES:** FOR USE BY THE TRANSPORTATION PROFESSIONAL, FACULTY, TEACHERS
**AUDIENCE:** MIDDLE SCHOOL
ADAPTABLE TO ANY AUDIENCE

I. **Introduction:** Hello, my name is _____ and I am a transportation engineer with _____. I am here today to talk to you about how humans play an important role in how I do my job. *[Have the students name different modes of transportation].*

II. **Fun with Signs:** First, we're going to have some fun with traffic signs. Each sign on this page has a specific meaning that tells a driver or a pedestrian what is up ahead or what they can and cannot do. Pick the letter that best fits your idea of what each sign means. *[Give the students a few minutes to fill out the form and then go over the answers with them. Give them the answers on a separate sheet afterwards].*

III. **Slide Activity:** Now we're going to see what it would be like to try and read and understand these signs while driving a car. *[Hand each student an answer page. Explain to them that they will see each slide for a very short time (~ 1 second) and they must try and guess what the sign says or means. After you show the slides, go over the answers with them.]*

IV. **Human Factors and Transportation:** Talk about the importance of the human in transportation. See information sheet for facts.

V. **Occlusion Activity:** Have the students team up in pairs. Set up an obstacle course with three traffic cones. One student will wear the visor and the other will act as a guide to keep the other student from being injured. Give the student with the visor a brief glimpse (approximately 1 second) of the obstacle course. Have the student attempt to walk through the course without hitting a cone. See if the student with the visor hits anything. Repeat the activity with 4, 5, and 6 cones and have the students switch positions each time - each student will get to walk the obstacle course twice. Keep track of the data. You can use a blindfold if you don't have an occlusion visor.

VI. **Data Graphing:** Have each team of students input their data into a computer on a spreadsheet to graph the results. Talk about the importance of visual information and how the more complex the task, the easier it is to make a mistake. Emphasize why we keep things simple, with few words and symbols that are easy to understand.

VII. **Closing:** Give students a handout on sites where they can find out more about transportation engineering as a profession, bookmarks, etc.

# FUN WITH SIGNS

A. No Thumb Sucking Allowed
B. No Hitching
C. Left-Handed People Only

A. Dead Skunk in the Middle of the Road Ahead
B. Blind Driver Ahead
C. Slippery When Wet

A. Handicapped
B. Beanbag Chairs for Sale
C. Rocking Chairs for Sale

A. No Bikes Sold Here
B. No Bicycles
C. Unicycles Only

A. Men Feeding Killer Whales Ahead
B. Excalibur zone
C. Workers ahead

A. This Way to Only, TX
B. Two-way Left Turn Lane
C. Left-Handed and Right- Handed People Allowed

A. We don't know where you are either
B. You'll never guess what's up ahead
C. Information

A. High Tides Flood Road
B. Swimming
C. Swim Suits Sold Here

A. Restaurant Out of Spoons
B. Knife and Fork in the Road Ahead
C. Food

A. No Crossing
B. No Walking with Swinging Arms
C. Women Only

A. Fresh Milk for Sale
B. Cows for Sale
C. Livestock Ahead

A. Flood Zone
B. Camping
C. Pyramid Tours

# FUN WITH SIGNS (ANSWERS)

A. No Thumb Sucking Allowed
***B. No Hitching***
C. Left-Handed People Only

A. Dead Skunk in the Middle of the Road Ahead
B. Blind Driver Ahead
***C. Slippery When Wet***

***A. Handicapped***
B. Beanbag Chairs for Sale
C. Rocking Chairs for Sale

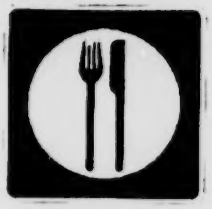
A. No Bikes Sold Here
***B. No Bicycles***
C. Unicycles Only

A. Men Feeding Killer Whales Ahead
B. Excalibur Zone
***C. Workers ahead***

A. This Way to Only, TX
***B. Two-way Left Turn Lane***
C. Left-Handed and Right- Handed People Allowed

A. We don't know where you are either
B. You'll never guess what's up ahead
C. ***Information***

A. High Tides Flood Road
***B. Swimming***
C. Swim Suits Sold Here



A. Restaurant Out of Spoons
B. Knife and Fork in the Road Ahead
***C. Food***

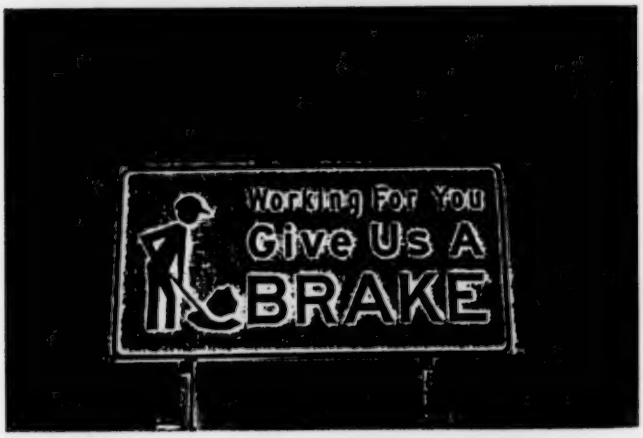
***A. No Crossing***
B. No Walking with Swinging Arms
C. Women Only

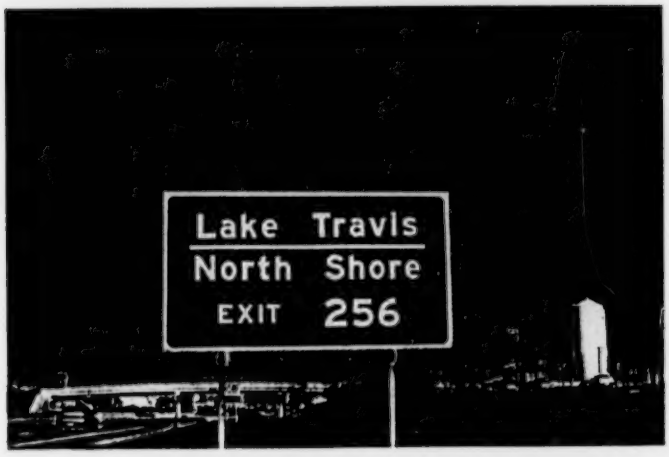
A. Fresh Milk for Sale
B. Cows for Sale
***C. Livestock Ahead***

A. Flood Zone
***B. Camping***
C. Pyramid Tours

# SLIDE ACTIVITY

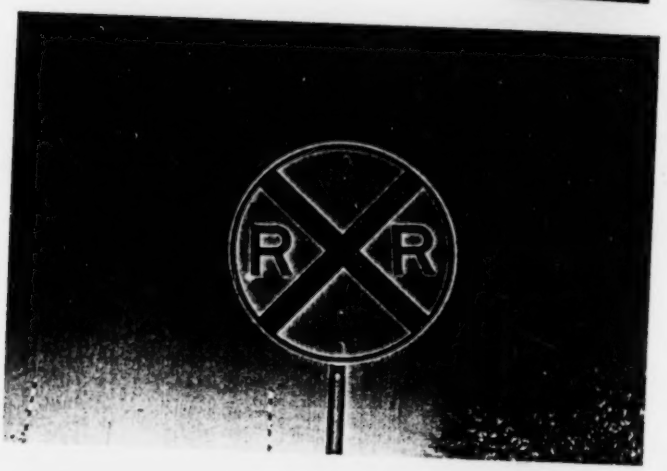
| SLIDE # | WHAT DO YOU THINK IT MEANS? |
|---|---|
| 1 | |
| 2 | |
| 3 | |
| 4 | |
| 5 | |
| 6 | |
| 7 | |
| 8 | |
| 9 | |
| 10 | |



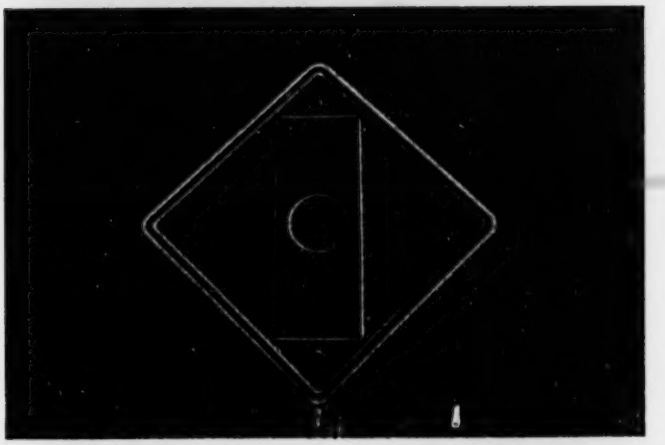





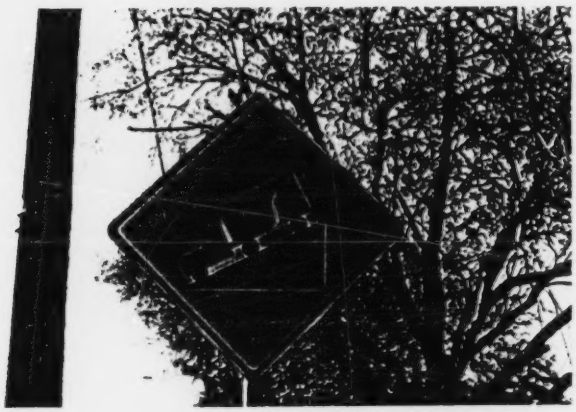

BEST COPY AVAILABLE

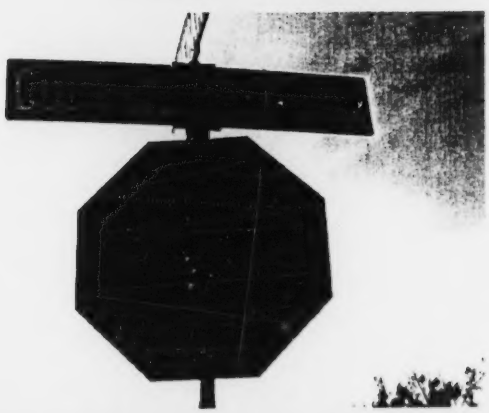


BEST COPY AVAILABLE



51





BEST COPY AVAILABLE

## Human Factors and Transportation
## Facts and Traffic Sign Tidbits

- About 95% of the information you need as a driver is taken in by your eyes: this is why transportation engineers care so much about you, the driver, when they design the transportation system - especially the information system
  - Transportation engineers have to do a good job of giving drivers the information they need so that they can understand what is up ahead.
  - Why? So they don't get lost or perhaps become involved in a car wreck.
- In general, signs with only a few words or those signs with graphics instead of words are easier to read than more complex signs. Why?
  - The average person can read about 3 words a second
    - The more words on the sign, the longer it takes to read it, understand what message is being given to the viewer, and what action, if any, needs to be taken.
    - The larger the text on a sign, the farther away it can be read, and the more time the viewer has to read it before they have to do something.
    - For example, you can travel a significant distance while trying to read a sign, which can create problems in a complex driving environment.
      - The distance you travel during one second:
        - 45 mph - 66 feet
        - 55 mph - 81 feet
        - 65 mph - 95 feet
        - 70 mph - 103 feet
      - The distance you travel during two seconds:
        - 45 mph - 132 feet
        - 55 mph - 162 feet
        - 65 mph - 190 feet
        - 70 mph - 206 feet
- It takes less time for your brain to process an icon or graphic symbol than it does to process words
  - How does this affect how transportation engineers provide you with information?
    - Sign Shape:
      - Octagon - STOP sign
      - Equilateral triangle with one point downward - YIELD sign
      - Round - advance warning of a railroad crossing; civil defense evacuation route marker
      - Pennant / isosceles triangle with longest axis horizontal - warn of no passing zones
      - Diamond - warning of existing or possible hazards either on the roadway or adjacent to it

- Rectangle / longer dimension vertical: regulatory signs, with the exception of the STOP and YIELD signs
- Rectangle / longer dimension horizontal: guide signs, with the exception of certain rout markers and recreational area guide signs
- Trapezoid - recreational area guide signs
- Pentagon - School Advance and School Crossing signs

- Color
  - Red
    - background color for STOP, DO-NOT-ENTER, WRONG WAY signs, and on Interstate route markers
    - text color on YIELD signs, parking prohibition signs, and the circular outline and diagonal bar prohibitory symbol
    - prohibits something
  - Black
    - background on ONE WAY sign, certain weigh station signs, and night speed limit signs
    - text color on white, yellow, and orange signs
  - White
    - background color for route markers, guide signs, and regulatory signs, except STOP signs
    - text color on brown, green, blue, black, and red signs
  - Orange
    - background color on construction or maintenance signs
  - Yellow
    - background color on warning signs (except where orange is specified) & school signs
  - Brown
    - background color for guide and information signs related to points of recreational or cultural interest
  - Green
    - background color on guide signs, mileposts
    - text color with a white background for permissive parking regulations and the circular outline permissive symbol
  - Blue
    - background color on information signs related to motorist services and the Evacuation Route Marker

## APPENDIX D: TRANSIT IN SCHOOLS CONTACT DIRECTORY

## TRANSIT IN SCHOOLS SURVEY

We are planning a **Transit in Schools Workshop** as part of the 1999 SWTA Marketing Seminar. The Texas Transportation Institute (TTI), in coordination with the Southwest University Transportation Center (SWUTC) and the Center for Professional Development at TTI, have volunteered to develop and coordinate the workshop.

In addition to providing information on exemplary public transit system programs and projects that target schools, we plan to prepare a directory of school project contacts at each transit property to encourage networking and a continual exchange of ideas and information. Please complete the survey form below. If you are not the appropriate person to complete the information, would you please pass it along to that person.

### Transit in Schools:
### Curriculum Development & Other Projects

Transit System: _____

Person Completing this Form: _____

Person Most Responsible for School Programs/Projects:

Name: _____ Title: _____

Address: _____

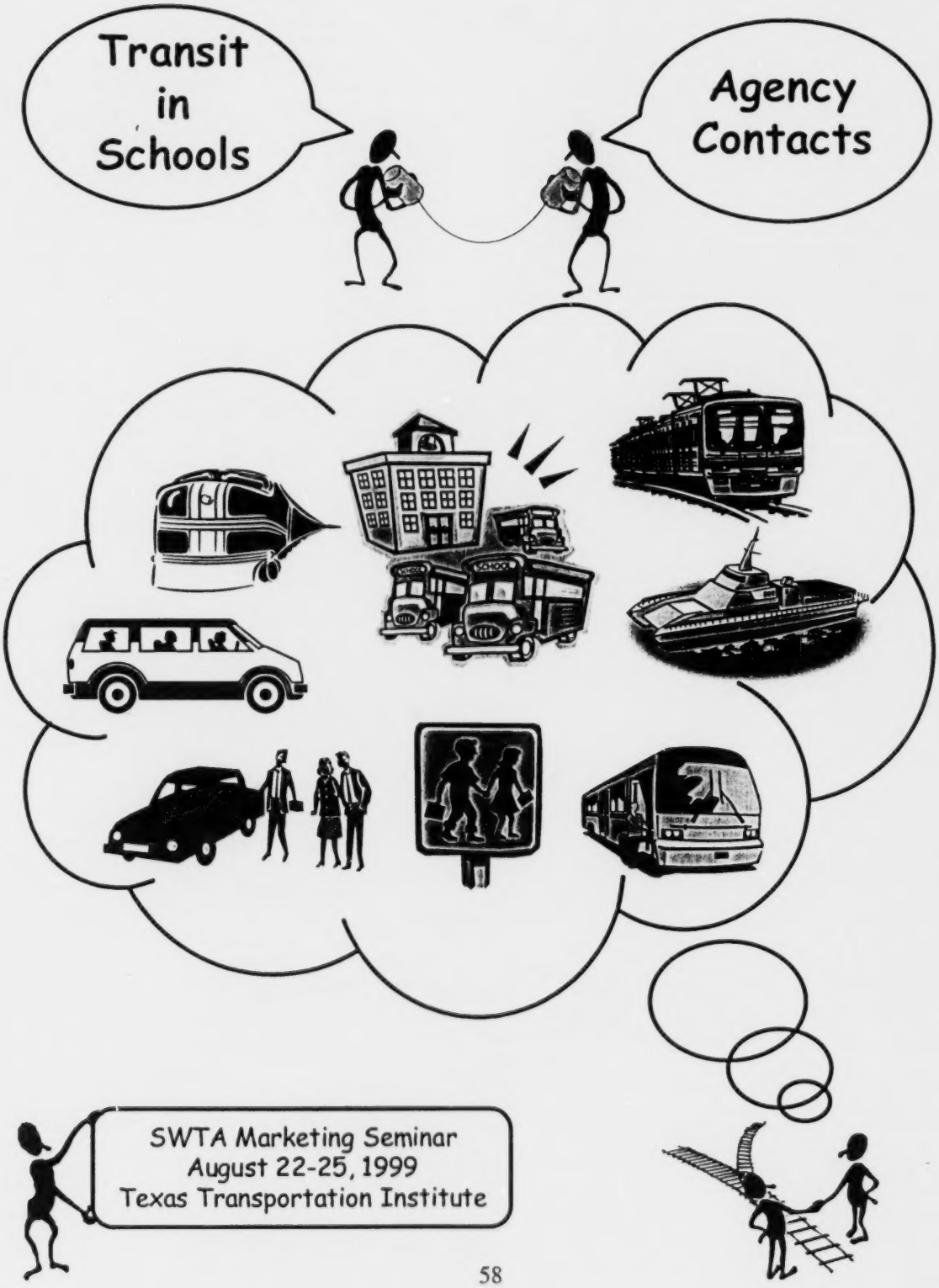
Phone: _____ Fax: _____ Email: _____

Type(s) of School Programs: (please check all that apply)

[ ] Ongoing School Curriculum Development
[ ] Poster / Poetry Contests
[ ] Career Day Activities
[ ] Participation in Garrett A. Morgan Activities
[ ] Use of Transit City, U.S.A.
[ ] Participation in National Summer Transportation Institute

[ ] Other _____

Comments:


Transit in Schools
Agency Contacts
SWTA Marketing Seminar
August 22-25, 1999
Texas Transportation Institute

# Transit in the Schools

## A Directory of Transit System Contacts for School & Youth Related Programs

Developed by
Texas Transportation Institute

in coordination with
South West Transit Association
Southwest University Transportation Center
TTI Center for Professional Development

August 1999

## Acknowledgment

This directory was prepared from the collected responses to a national survey of public transit providers that was mailed in June 1999 by South West Transit Association and the Texas Transportation Institute.

Listings in the directory are provided in alphabetical order by (1) state, and (2) the city of the transit system offices.

The directory was prepared by Ms. Cinde Weatherby of TTI. For additional copies of the directory, or an electronic file, please contact her as noted below.

Ms. Cinde Weatherby
Associate Research Scientist
Texas Transportation Institute
110 N. Davis Drive, Suite 101
Arlington, TX 76013
817/462-0518; fax - 817/461-1239
email: cinde-weatherby@tamu.edu.

## Alabama

### Metro Transit

Main Contact
Ms. Barbara Knott, Director of Marketing & Public Relations
1224 South Beltline Highway
Mobile, AL 36609
334/344-6600; fax - 334/344-9395
barbknott@aol.com

Programs
Ongoing School Curriculum Development
School Pool Program

*****

## Arkansas

### Central Arkansas Transit Authority

Main Contact
Ms. Betty Wineland, Assistant General Manager
901 Maple Street
North Little Rock, AR 72114
501/375-6717; fax - 501/375-6812
bwineland@cat.org

Programs
Career Day Activities
School Presentations for pre-K - 6th Grade
Free fixed route transit for field trips K - 6th grade

*****

## Arizona

### Valley Metro

Main Contact
Ms. Helen Romesburg, School Outreach Coordinator
302 N. First Avenue, Suite 640
Phoenix, AZ 85003
602/261-8253; fax - 602/261-8756
hromesburg@vm.maricopa.gov

Programs
Ongoing School Curriculum Development
Career Day Activities

***

### Valley Metro - Regional Public Transportation Authority

Main Contact
Ms. Wendy Hansen, Employer & Community Services Coordinator
302 N. First Avenue, Suite 640
Phoenix, AZ 85003
602/262-7433; fax - 602/534-1839
whansen@vm.maricopa.gov

Programs
Ongoing School Curriculum Development

***

### SunTran

Main Contact
Ms. Sally Valenzuela, Customer Relations Manager
P.O. Box 26765
Tucson, AZ 85726
520/623-4301; fax - 520/791-2285
svalenz1@ci.tucson.az.us

Programs
Ongoing School Curriculum Development
'Bus Buddy' Presentation for grades K-2
Action Rider Presentation for grades 3-5
Class Project - Nine-week Lesson Plan Package for High School Teachers
'Code-of-the-Road' Program for 15-21 year olds (dealing with behavior, respect, and crime)

*****

## California

### Tri Delta Transit

Main Contact
Ms. Gwen Black, Marketing Coordinator
801 Wilbur Avenue
Antioch, CA 94509
925/754-6622; fax - 925/757-2530
gblack@eccta.org

Programs

Poster / Poetry Contests
Class Pass Program

***

## Golden Empire Transit District

Main Contact
Kathleen McNeil, Marketing Coordinator
1830 Golden State Avenue
Bakersfield, CA 93301
661/324-9874; fax - 661/324-7849

Programs
Career Day Activities
Poster / Poetry Contests
Classroom Presentations
Summer Camps
Video for Junior and Senior High Presentations ["Ride Here. Ride Now - 869-2GET. For a Better Tomorrow"]

***

## Antelope Valley Transit Authority

Main Contact
Mr. Steve Navarro, Planning and Service Coordinator
1031 W. Avenue L-12
Lancaster, CA 93534
661/726-2616, Ext. 206; fax - 661/726-2615
snavarro@avta.com

Programs
Career Day Activities
Security Program ($165,000 per year) includes Sheriff Deputies riding the school tripper buses

***

## South Coast Area Transit

Main Contact
Ms. Margaret Heath, Planning & Marketing Assistant
301 E. Third Street
P.O. Box 1146
Oxnard, CA 93032-1146
805/483-3959; fax - 805/487-0925
mheath@scat.org

Programs
Poster / Poetry Contests

Book Covers for Students

***

## Sacramento Regional Transit District

Main Contact
Ms. Jeri Smith, Marketing Associate
P.O. Box 2110
Sacramento, CA 95812-2110
916/321-2929; fax - 916/444-0502
jsmith@sacrt.org

Programs
Ongoing School Curriculum Development
Career Day Activities
Poster / Poetry Contests

***

## San Mateo County Transit District

Main Contact
Mr. Anthony Ciardella, Public Information Assistant
P.O. Box 3006
San Carlos, CA 94070-1306
650/508-6422; fax - 650/508-7919
ciardellaa@samtrans.com

Programs
Career Day Activities
Program Presented in the schools

***

## Santa Cruz Metropolitan Transit District

Main Contact
Ms. Donna Canales, Customer Services Coordinator
920 Pacific Avenue, Suite 21
Santa Cruz, CA 95060
831/425-8600; fax - 831/423-1024
donna@scmtd.com

Programs
Ongoing School Curriculum Development

*****

# Florida

## Pinellas Suncoast Transit Authority

Main Contact
Ms. Janet Recca, Director of Marketing
14840 49th St., North
Clearwater, FL 33762
727/530-9921; fax - 727/535-5580

Programs
Reduced Student Fares
Free Trips for Classes during National Library Week and National Book Week

***

## Lee County Transit

Main Contact
Mr. Jeff Schuler, Marketing & Advertising Director
10715 E. Airport Road
Fort Myers, FL 33907
941/277-5012; fax - 941/277-5011

Programs
Ongoing School Curriculum Development
Poster / Poetry Contests

***

## Escambia County Area Transit

Main Contact
Ms. Nancy Lohr, Marketing Assistant
175 Palofox Place, Suite 390
Pensacola, FL 32501
850/595-3241; fax - 850/595-3243
nlohr@ecat.pensacola.com

Programs
Career Day Activities
Classroom on Wheels Program

***

Sarasota County Area Transit

Main Contact
Mr. Dominick Locascio, Marketing Coordinator
5303 Pinkney Avenue
Sarasota, FL 34233-2421
941/316-1007; fax - 941/316-1238
Dlocasci@co.sarasota.fl.us

Programs
Ongoing School Curriculum Development
'Bus It & Book It Program' [Joint effort with Sarasota County School Department and Sarasota County Library Department]

*****

## Georgia

METRA Transportation System

Main Contact
Mr. Pedro R. Rivera, Transportation Services Manager
P.O. Box 1340
Columbus, GA 31993
706/653-4409; fax - 706/653-4420

Programs
Ongoing School Curriculum Development
Support School Parenting Program by Providing Transportation
Provide Elementary Schools with Briefings and Tours every Friday

*****

## Illinois

Regional Transportation Authority

Main Contact
Ms. Barb Byrd, Director of External Affairs
181 W. Madison Street, Suite 1900
Chicago, IL 60602
312/1412; fax - 312/917-0737

Programs
Career Day Activities
'Smartrides' Coloring Books (Promoting rider safety and courtesy)

***

### Pace Suburban Bus

Main contact
Mr. Tony Bowman, Marketing Specialist
550 W. Algonquin Road
Arlington Heights, IL 60005
847/228-2406; fax - 847/956-7916
anthony.bowman@pacebus.com

Programs
Career Day Activities
Poster/Poetry Contests

***

### Greater Peoria Mass Transit District

Main Contact
Mr. Bruce Reed, Director of Marketing
2105 N.E. Jefferson Avenue
Peoria, IL 61603
309/676-8015; 309/676-8373
Breed@GPTRANSIT.net

Programs
Career Day Activities
Summer Fun & Sun Pass Program

*****

## Indiana

### Muncie Indiana Transit System

Main Contact
Ms. Mary Gaston, Assistant General Manager
1300 E. Seymour Street
Muncie, IN 47302
765/282-2762; fax - 765/287-2385
mgaston@mitsbus.org

Programs
Career Day Activities
Poster / Poetry Contests
Tour of Facilities / Bus Rides / Video

*****

## Kentucky

### Transit Authority of River City

Main Contact
Ms. Peggy Holsclaw, Marketing / Communication Coordinator
1000 W. Broadway
Louisville, KY 40203
502/561-5115; fax - 502/561-5253
tarc@aye.net

Programs
Ongoing School Curriculum Development
Career Day Activities
Kids Salute TARC Design-a-Bus Contest

*****

## Louisiana

### Capital Transportation Corporation

Main Contact
Ms. Michelle P. Jackson, Director of Planning & Marketing
2250 Florida Boulevard
Baton Rouge, LA 70802
225/389-8920; fax - 225/389-8919
michellej@ci.baton-rouge.la.us

Programs
Development of book covers and coloring books now underway

***

### Regional Transit Authority

Main Contact
Ms. Lisa B. Burns, Director of Marketing & Public Relations
6700 Plaza Drive
New Orleans, LA 70127

504/248-3894; 504/248-3828

Programs
Ongoing School Curriculum Development
Career Day Activities
Poster / Poetry Contests
Partnerships in Education
Adopt-a-School Program

***

### SporTran - Shreveport, LA Transit System

Main Contact
Ms. Deloris Mosely, Customer Services Coordinator
1115 Jack Wells Boulevard
Shreveport, LA 71107
318/613-7400; fax - 318/613-7424

Programs
Career Day Activities
School Kid Visits to Transit Terminal
Handout Materials Aimed at School-Aged Kids

*****

## Maryland

### Montgomery County Transit

Main Contact
Ms. Laura Chin, Transit Marketing Specialist
110 N. Washington Street
Rockville, MD 20850
240/777-5862; fax - 240/777-5801
laura.chin@co.mo.md.us

Programs
Career Day Activities Upon Request
Annual Mural Contest for 6th Graders (public and private schools)
Tokens for Students in Afterschool Activities
Monthly Youth Cruiser Pass (age 18 and under)
Participation in county "Truck Days"
Participation in School Festivals
Development of Gamebook for children age 6-10

*****

# Massachusetts

## Pioneer Valley Transit Authority

Main Contact
Ms. Mary Commisso, Supervisor of Information
1776 Main Street
Springfield, MA 01103
413/736-3604; fax - 413/788-7272

Programs
Career Day Activities
Bus visits to schools for 3rd and 4th graders – to teach safety on public buses. Take students on a tour of bus facilities and give them rides through the bus washer.

***

## RTA Transit Services, Inc.

Main contact
Ms. Cathy Archambeault, Sales and Promotions Manager
287 Grove Street
Worcester, MA 01605
508/756-8324; fax - 508/752-3153
archer@massed.net

Programs
Career Day Activities
Use of 'Transit City, USA'
Poster/Poetry Contests
Field Trips

*****

# Michigan

## Ann Arbor Transportation Authority

Main Contact
Ms. Liz Margolis, Manager of Community Relations
2700 S. Industrial Highway
Ann Arbor, MI 48104

734/677-3901; fax - 734/973-6338
liznm@theride.org

Programs
Youth tours for elementary and middle school-aged children
Activity Books for K-3rd graders
On-Board discussions and tour of transit facility, including the bus washer

***

### Detroit Department of Transportation

Main Contact
Ms. Jeanette Taylor Parker, Supervisor - Customer Service
1301 E. Warren Avenue
Detroit, MI 48207
313/935-3808; fax - 313/833-5523
JeaPar@ddot.ci.detroit.mi.us

Programs
Ongoing School Curriculum Development
Career Day Activities
Use of 'Transit City, USA'
Anti-Vandalism Program with a Mascot

***

### Grand Rapids Area Transit Authority

Main Contact
Ms. Ronda Frazer, Marketing Coordiinator
333 Wealthy Street, S.W.
Grand Rapids, MI 49503
616/774-1155; fax - 616/459-6337

Programs
Ongoing School Curriculum Development
Career Day Activities
Summer Rides Discount pass for students high school age and younger
Ride-2-Read Bus Passes for free rides to the library

*****

## Minnesota

### St. Cloud Metropolitan Transit Commission

Main Contact

Ms. Kim McCarney, Administrative Secretary
665 Franklin Avenue, N.E.
St. Cloud, MN 56304
320/251-1499; fax - 320/251-3499
mtc@cloudnet.com

Programs
"Books on Board" program
Elementary School Field Trip Sponsorship

*****

## Missouri

### Kansas City Area Transportation

Main Contact
Ms. Cynthia M. Baker, Marketing Director
1200 E. 18th Street
Kansas City, MO 64108
816/346-0209; fax - 816/346-0305
cbaker@kcata.org

Programs
Career Day Activities
Participation in Garrett A. Morgan Activities

*****

## New Mexico

### City of Albuquerque Transit Department

Main Contact
Ms. Roberta Haynes-Sparks, Schools Program Coordinator
601 Yale Street, S.E.
Albuquerque, NM 87106
505/764-8931; fax - 505/764-6146
rhsparks@cabq.gov

Programs
Ongoing School Curriculum Development
Art Contests for Elementary & Middle Schools

*****

## New York

### Westchester County Department of Transportation

Main Contact
Ms. Mary Ellen Burns, Program Specialist
112 East Post Road
White Plains, NY 10601
914/285-6110; fax - 914/682-2987
MBB4@co.westchester.ny.us
Programs
Ongoing School Curriculum Development
Developing elementary school program

*****

## North Carolina

### AppalCART

Main Contact
Mr. John Kirk, Operations Manager
274 Winklers Creek Road
P.O. Box 2357
Boone, NC 28607-2357
828/264-2278; fax - 828/264-0107
appalcart@boone.net

Programs
Contracts with Watauga County Schools to provide athletic and after school transportation

*****

## Ohio

### Metro Regional Transit Authority

Main Contact
Ms. Louwana Oliva, Director of Communications
416 Kenmore Boulevard
Akron, OH 44301
330/762-7267, Ext. 3115; fax - 330/762-0854
Louwana@akronmetro.org

Programs
Ongoing School Curriculum Development
Career Day Activities
'Cool Rider' Elementary School Program (uses mascot visit, video and worksheets)
Tours of Transit Authority (age-related by group)
Reduced rate for classrooms to use transit for field trips

***

## Metro Regional Transit Authority (SCAT)

Main Contact
Mr. Alan R. Smith, Director of SCAT
416 Kenmore Boulevard
Akron, OH 44301
330/762-7267, Ext. 3007; fax - 330/762-0854
asmith6970@aol.com

Programs
Career Day Activities
Poster / Poetry Contests
Transition School to Work
Parent Mentor Program
Special Education

***

## Central Ohio Transit Authority

Main Contact
Ms. Karen Ritchey, Public Relations Specialist
1600 McKinley Avenue
Columbus, OH 43222
614/275-5813; 614/275-5933
ritcheykj@cota.com

Programs
Ongoing School Curriculum Development
Career Day Activities
Poster / Poetry Contests
***

## Miami Valley Regional Transit Authority

Main Contact
Ms. Rosemary Walsh, Manager of Marketing & Public Affairs
600 Longworth Street
P.O. Box 1301
Dayton, OH 45401-1301

937/443-5800; fax - 937/226-0510
rwalsh@mvrta.org

Programs
Career Day Activities
Poster / Poetry Contests
"Partners in Education" participant (holiday greeting card contest, artwork displays on buses, judging at science fair, classroom prizes, mentoring program, coaching of a second grade basal ball team)

*****

# Oklahoma

## Tulsa Transit

Main Contact
Ms. Regina Jackson, Customer Relation Supervisor
P.O. Box 52488
Tulsa, OK 74452
918/585-1195; fax - 918/582-5209
rjackson@tulsatransit.org

Programs
Career Day Activities
Bus Safety Training
"Way to Go Kid" Program (buses taken to schools, bus rides) available to schools and day care centers

*****

# Oregon

## Lane Transit District

Main Contact
Mr. Andy Vobora, Service Planning and Marketing Manager
P.O. Box 7070
Eugene, OR 97401
541/682-6100; fax - 541/682-6111
avobora@ltd.lane.or.us

Programs
Career Day Activities
Elementary School Curriculum (Three-week program for 3rd-5th graders)
Sponsorship of Alternative Transportation Mode Presentations at Schools (by the Center for Appropriate Transportation, focusing on use of the bus and bikes)

High School Curriculum Development Underway

***

### Rogue Valley Transportation District

Main Contact
Mr. Richard Smith, Marketing Specialist
3200 Crater Lake Avenue
Medford, OR 97504
541/779-5821; fax - 541-773-2877

Programs
Ongoing School Curriculum Development
Career Day Activities
Poster / Poetry Contests
Interactive Bus Decal System (Gus Rides the Bus) for K-6th Grade [Soon expanding to middle school and special education high school curriculum]

***

### Tri-Met

Main Contact
Ms. Beth Erlendson, Marketing Representative III
4017 S.E. 17th Avenue
Portland, OR 97202
503/962-6438; fax - 503/962-6469
erlendsb@trimet.org

Programs
Ongoing School Curriculum Development
Poster / Poetry Contests

*****

## Pennsylvania

### Centre Area Transportation Authority

Main Contact
Mr. Eric Beunier, Director of Service Development
2081 W. Whitehall Road
State College, PA 16801
814/238-2282; fax 814/238-7643
dirsedev@catabus.com

Programs

Career Day Activities

***

### York County Transportation Authority

Main Contact
Ms. Christine Helwig Amy, Development Coordinator
1230 Roosevelt Avenue
York, PA 17404
717/849-0708; fax - 717/848-4853
chrisamy@communitytransit.com

Programs
Career Day Activities
Daycare & Elementary School Tours and Presentation

*****

## Tennessee

### Chattanooga Area Regional Transportation Authority

Main Contact
Ms. Helen Cahill, Marketing Manager
1617 Wilcox Boulevard
Chattanooga, TN 37406
423/629-1411; fax - 423/698-2749

Programs
Career Day Activities Upon Request
School Tour Program by Reservation (tour of transit facility and bus ride)

***

### Memphis Area Transit Authority

Main contact
Ms. Alison S. Burton, Director of Marketing
1370 Levee Road
Memphis, TN 38108
901/722-7119; fax - 901/722-7123
aburton@matatransit.com

Programs
Career Day Activities

*****

# Texas

## Capital Metro

Main Contact
Ms. Juliana Fernandez, Communications Coordinator
2910 E. 5th Street
Austin, TX 78702
512/389-7550; fax - 512/369-6072
julie.fernandez@capmetro.org

Programs
Career Day Activities
Mentoring
Special Shuttles
Donations for School Projects

***

## Corpus Christi Regional Transportation Authority

Main Contact
Ms. Dianne Garcia, Customer Programs Assistant
1812 S. Alameda
Corpus Christi, TX 78405
361/883-2287; fax 361/884-4475
mmora@swbell.net

Programs
Career Day Activities
Poster / Poetry Contests
Summer Teen Pass
Adopt-a-School
School / Educational Charters

***

## Dallas Area Rapid Transit

Main Contact
Ms. Jessica Lennon, Supervisor of Transit Education and Outreach
1401 Pacific Avenue
P.O. Box 660163
Dallas, TX 75266-0163
214/749-8582; fax - 214/749-3667
Jlennon@DART.org

Programs
Ongoing School Curriculum Development
Poster / Poetry Contests
Career Day Activities
Participation in Garrett A. Morgan Activities
Participation in National Summer Transportation Institute

***

## Sun Metro Mass Transit

Main Contact
Ms. Magda C. Acuña, Marketing
700-A San Francisco Street
El Paso, TX 79901
915/533-1220; fax - 915/534-5816

Programs
Career Day Activities
School Health Fairs

***

## The T - Fort Worth Transportation Authority

Main Contact
Ms. Glenda M. Thompson, Marketing Administrator
1600 E. Lancaster
Fort Worth, TX 76102
817/215-8623; fax - 817/215-8709
gthomp@the-T.com

Programs
Adopt-a-School (includes quarterly "mystery tour" for most-improved students and school supply drive)

***

## SPARTAN

Main Contact
Ms. Irma Guerra, Program Director
P.O. Box 610
Levelland, TX 79336
806/894-3800; fax - 806/894-2759
SPARTAN@Llano.net

Programs
Career Day Activities

Schools Identified in Fixed Route Schedules

***

## Citibus - City Transit Management Co., Inc.

Main Contact
Ms. Jessica Black, Marketing Coordinator
P.O. Box 2000
Lubbock, TX 79457
806/767-2380, Ext. 246; fax - 806/767-2387
jblack@citibus.com

Programs
Career Day Activities
Poster / Poetry Contests

***

## VIA Metropolitan Transit

Main Contact
Ms. Jerri Ann Jones, Community Relations Coordinator
800 W. Myrtle Street
San Antonio TX 78212
210/362-2370, Ext. 7381; fax - 210/362-2572

Programs
Poster / Poetry Contests
Career Day Activities
'Classroom on Wheels' [on-site presentations in a 35-foot bus]
Facility Tours
Class Pass Program

***

## Texoma Area Paratransit Systems

Main Contact
Ms. DeeAnn Bilner, Assistant Operations Director
6104 Texoma Parkway
Sherman, TX 75090
903/893-4601; fax - 903/893-4766
tapsinc1@airmail.net

Programs
Poster / Poetry Contests during Try Transit Week

*****

## Virginia

### Greater Richmond Transit Company

Main Contact
Ms. Jennifer Kraegel, Assistant Director of Marketing
101 S. Davis Avenue
Richmond, VA 23220
804/358-3871; fax - 804/342-1933

Programs
Career Day Activities
Bus Facility Tours for School Kids

*****

## Washington

### Whatcom Transportation Authority

Main Contact
Mr. Steve Klanieck, Manager of Marketing
2011 Young Street
Bellingham, WA 98225
360/715-4505; fax - 360/738-7302
stevek@ridewta.com

Programs
Back-to-School Promotions for Western Washington University

***

### Kitsap Transit

Main Contact
Mr. John Clauson, Service Development Director
234 S. Wycoff Avenue
Bremerton, WA 98312
360/478-6223; fax - 360/377-7086
jclauson@telebyte.com

Programs
Ongoing School Curriculum Development

***

## Intercity Transit

Main Contact
Ms. Meg Kester, Senior Marketing Representative
P.O. Box 659
Olympia, WA 98507
360/705-5842; fax - 360/357-6104
mkester@intercitytransit.com

Programs
Use "Partners for Smart Commuting" materials
[School outreach is a new project in development with the Multi-State partners for Smart Commuting coalition (35 partner agencies in Washington, Oregon, Idaho, and Arizona – including transit, local public sector and state agency representation).]

***

## King County Metro Transit

Main Contact
Ms. Colene D. Baker, Transit Education Services Coordinator
201 S. Jackson Street
MS KSC-TR-0326
Seattle, WA 98104-3856
206/684-1532; fax - 206/684-2034
colene.baker@metrokc.gov

Programs
Website - www.metrokc.gov/kcdot/kids/transit/ [Describes the many programs for school-age kids]
School programs tailored to (1) kindergarten; (2) 1st - 3rd grades; (3) 4th - 6th grades; and (4) secondary schools and colleges.
Safety Assemblies
Speaker's Bureau and Tours
Field Trip Program
Transit Topics on the Web for School Papers
Online Newsletter

*****

# Wisconsin

## Madison Metro Transit System

Main Contact
Ms. Julie Maryott-Walsh, Marketing & Customer Services Manager
1101 E. Washington Avenue
Madison, WI 53703

608/266-5921; fax - 608/267-1108
jmaryott-walsh@ci.madison.wi.us

Programs
Distribution of route schedules and Metro "Youth News" during middle and high school registration

***

## Oshkosh Transit System

Main Contact
Ms. Beverlee A. Mallon, Transit Coordinator
926 Dempsey Trail
Oshkosh, WI 54901
920/232-5341; fax - 920/232-5343

Programs
Videotape for Third Graders (Show video and take classes on bus rides)

***

## Sheboygan Transit

Main Contact
Mr. Steven Billings, Director of Parking & Transit
608 S. Commerce Street
Sheboygan, WI 53081
920/459-3285; fax - 920/459-0231
transit@ci.sheboygan.wi.us

Programs
Elementary and Middle School Student / Parent Orientations